Final Draft
Dallas Transportation System Plan

Volume I
Text

Prepared for

City of Dallas
and the
Oregon Department of Transportation

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Prepared by

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Preface

The City of Dallas Transportation System Plan (TSP) was funded by the Oregon Department of Transportation. This document does not necessarily reflect the views or policies of the state of Oregon. The preparation of the TSP was guided by the Citizen Advisory Committee and the Consultant Team identified on the following page.

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Acronyms and Abbreviations

AAGR	average annual growth rate
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
AMP	Access Management Plan
ATR	Automated Traffic Recorder
CARTS	Chemeketa Area Regional Transportation System
CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
CMAQ	congestion mitigation/air quality
DAR	dial-a-ride
DDC	Dallas Development Code
DEIS	Draft Environmental Impact Statement
DLCD	Department of Land Conservation and Development
EIS	Environmental Impact Statement
FY	fiscal year
HCM	Highway Capacity Manual
HOV	High Occupancy Vehicle
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent Transportation System
LCD	Land Conservation and Development
LID	Local Improvement District
LOS	Level of Service
MEV	million entering vehicles
MP	milepost
mph	miles per hour
MPO	metropolitan planning organization
MUTCD	Manual on Uniform Traffic Control Devices
NCHRP	National Cooperative Highway Research Program
NHS	National Highway System
OAR	Oregon Administrative Rule
OBPP	Oregon Bicycle and Pedestrian Plan
ODOT	Oregon Department of Transportation
OHAS	Oregon Housing and Associated Services
OHP	Oregon Highway Plan
OPTP	Oregon Public Transportation Plan
ORS	Oregon Revised Statute

OTIA	Oregon Transportation Investment Act
OTP	Oregon Transportation Plan
PMT	Project Management Team
ROW	right-of-way
RTSP	Rural Transportation System Plan
SDC	Systems Development Charge
SOV	single-occupancy vehicle
SPIS	Safety Priority Index System
STA	Special Transportation Area
STIP	Statewide Transportation Improvement Program
TAZ	Transportation Analysis Zone
TDM	Transportation Demand Management
TEA-21	Transportation Equity Act for the 21st Century
TIA	Traffic Impact Analysis
TIF	Transportation Impact Fees
TPAU	Transportation Planning and Analysis Unit
TPR	Transportation Planning Rule
TSM	Transportation System Management
TSP	Transportation System Plan
TWSC	two-way stop control
UBA	Urban Business Area
UGB	urban growth boundary
v/c	volume-to-capacity
WTTN	Western Transportation Trade Network
WVTS	Willamette Valley Transportation Strategy

SECTION 1

Introduction

The City of Dallas (City), in association with the Oregon Department of Transportation (ODOT), has prepared a Transportation System Plan (TSP) that addresses the transportation issues and system needs within the City's Urban Growth Boundary (UGB) over a 20-year timeframe. This is the first TSP for the City of Dallas, though the City has prepared several fragmented documents in the past decade that address portions of the area's transportation system.

Purpose

The purpose of the TSP is to develop a plan that addresses the transportation issues and needs for all users of Dallas's transportation network over a 20-year planning horizon. The TSP provides for a safe, efficient, multi-modal transportation network. It has been prepared to be compliant with requirements specified in the state Transportation Planning Rule (TPR) and to be consistent with state, regional, and local plans and policies, including the Oregon Highway Plan (OHP) and the City of Dallas Comprehensive Plan.

Benefits

The Dallas TSP identifies a series of transportation facilities and services needed to support anticipated growth and development proposed in the Dallas Comprehensive Plan in a manner consistent with the TPR (Oregon Administrative Rule [OAR] 660-012) and the Oregon Transportation Plan (OTP). Preparation and adoption of a TSP for the City provides the following benefits:

- Ensures adequate planned transportation facilities to support planned land uses for the next 20 years
- Provides certainty and predictability for the siting of new streets, roads, highway improvements, and other planned transportation improvements
- Provides predictability for land development
- Helps reduce the cost and maximize the efficiency of public spending on transportation facilities and services by coordinating land use and transportation decisions

This TSP will guide the management and development of appropriate transportation facilities in Dallas, incorporating the community's vision, while remaining consistent with state, regional, and local plans. This report provides the necessary elements to be adopted as the transportation element of the City's Comprehensive Plan.

A system of transportation facilities and services adequate to meet the City's transportation needs to the planning horizon year of 2020 is established in this TSP. The TSP includes plans for a transportation system that incorporates all modes of travel, including auto, bicycle, pedestrian, rail, marine, and public transportation), serves the urban area, and is coordinated with the state and county transportation network.

Regulatory Requirements

The contents of the Dallas TSP are guided by Oregon Revised Statute (ORS) 197.712 and the Department of Land Conservation and Development (DLCD) administrative rule known as the TPR. These laws and rules require that jurisdictions develop the following:

- Plan for a network of arterial and collector roads
- Public transit plan
- Bicycle and pedestrian plan
- Air, rail, water, and pipeline plan
- Transportation financing plan
- Policies and ordinances for implementing the TSP

The TPR requires that alternative travel modes be given equal consideration with the automobile, and that reasonable effort be applied to the development and enhancement of the alternative modes in providing the future transportation system. In addition, the TPR requires that local jurisdictions amend land use and subdivision ordinances to implement the provisions of the TSP. Finally, local communities must coordinate their respective plans with the applicable county, regional, and state transportation plans.

Public Review of the TSP

The TSP planning process provided the citizens of Dallas with the opportunity to identify priorities and provide input on future transportation projects in the City. The public involvement component of the Dallas TSP consisted of two public open houses and three Citizen Advisory Committee (CAC) meetings. The CAC is a standing city committee engaged by the City to provide input on planning related activities. The three CAC meetings held during the course of developing the Dallas TSP focuses on review of (1) goals, objectives and deficiencies, (2) alternatives analysis and recommendations, and (3) draft plan recommendations. All of the CAC meetings were advertised and open to the public.

Two community open houses were designed as the primary public outreach tool for the TSP planning process and provided opportunities for the public to review plan materials and to provide comments to the Project Management Team guiding development of the plan. The first open house provided background information on the TSP process, findings and multimodal elements being considered. The second open house was held to review and gather public input on the draft TSP document.

Feedback from these forms was combined with input from the Project Management Team to produce a plan that will help to guide future transportation investments in Dallas for the next 20 years.

Goals and Policies

The formulation of goals and objectives is an important component of any transportation planning process. The goals and objectives outlined in this section are based on review of the July 1998 City of Dallas Comprehensive Plan and June 1995 Transportation Planning Rule (TPR) Compliance Document, as well as recently completed TSPs for other jurisdictions in western Oregon. They have been refined through agency and community input obtained during TSP preparation.

The inclusion of goals and objectives in the Dallas TSP serves two primary purposes: (1) to guide the development of the Dallas transportation system during the next 20 years and (2) to demonstrate how the TSP relates to other county, regional, and state plans and policies. The goal statements are general statements of purpose to describe how the city, through the TSP, intends to address the broad elements of the transportation system. The objectives will be specific steps that illustrate how each goal is to be carried out.

Goal 1: Multi-Modal Transportation System

Develop a balanced transportation system that will meet the needs of all users, including youth, elderly, and those with physical disabilities. Such a transportation system does not depend solely on one mode of transportation, but rather provides a variety of transportation features to accommodate vehicle travel as well as public transportation, bicycling, and walking.

Objectives

- Work with the Salem Area Mass Transit District to educate residents about existing CARTS transit service and to identify future service improvements.
- Encourage residents and business owners in Dallas, especially those that use the Dallas-Rickreall and Kings Valley highways on a daily basis, to make use of existing rideshare matching services provided by Mid-Valley Rideshare.
- Identify ways to encourage freight vehicles to use the existing signed truck route along Levens Street.
- Coordinate with the applicable railroad company to improve freight rail service and public right-of-way crossings.
- Develop, adopt, and enforce design standards for arterials and collectors describing minimum right-of-way width, pavement, pedestrian service, bicycle travel, and other parameters.
- Recognize the need for sufficient parking for commercial development.

Goal 2: Mobility

Provide a viable transportation system that meets state and local mobility standards. Such a transportation system allows different users of the network a reliable means of getting from origin to destination.

Objectives

- Provide a network of arterials and collectors that are interconnected, appropriately spaced, and reasonably direct.
- Maintain mobility standards for each functional classification of street (e.g., arterial, collector, local).
- Accommodate local traffic and through travel.
- Minimize travel distances and vehicle-miles traveled.
- Encourage development patterns that offer connectivity and mobility options for members of the community.

Goal 3: Economic Development and Viability

Provide a transportation system that balances transportation system needs with the City's desire for economic development and viability.

Objectives

- Minimize traffic congestion in the downtown commercial area.
- Discourage through-traffic and high speeds in residential areas.
- Use design techniques to slow traffic through downtown and in other areas of high pedestrian traffic
- Provide efficient street connections between industrial sites and the arterial street network.

Goal 4: Coordination

Maintain a TSP that is consistent with the goals and objectives of the TPR and relevant state, regional, and local plans and policies.

Objectives

- Produce a TSP that is consistent with the objectives of the TPR.
- Provide a transportation system that is consistent with the City of Dallas Comprehensive Plan.
- Ensure that elements of the plan involving or affecting OR 223 Kings Valley Highway and Dallas-Rickreall Highway are consistent with the Oregon Transportation Plan and Oregon Highway Plan.
- Coordinate with Polk County on elements of the plan involving or affecting County-owned roads.
- Coordinate with relevant local and regional partners on land use and transportation decisions.

Goal 5: Pedestrian and Bicycle Facilities

Provide for an interconnected system of pedestrian and bicycle facilities in Dallas to serve commuter and recreational users.

Objectives

- Ensure and strengthen the presence of safe, attractive, and convenient pedestrian and bicycle access to and circulation in the downtown area.
- Develop or maintain safe, connected pedestrian and bicycle facilities near schools, residential districts, and commercial districts.
- Provide or require provision of sidewalks on all new public streets.
- Construct and maintain bike lanes, bike paths, and shared roadway shoulder routes.

Goal 6: System Preservation and Improvements

Be consistent with the City's current strategy to preserve and extend the life of the existing transportation network.

Objectives

- Maintain consistent levels of maintenance to keep roadways, curbs, gutters, and sidewalks in acceptable condition.
- Identify and construct incremental improvement projects to meet future travel demand while minimizing impacts to residents, tourists, and businesses.
- Ensure that development does not preclude the construction of future street connections identified in this TSP.
- Consider transportation system impacts from relevant transportation impact studies when making land use decisions.
- Continue requiring developers to aid in the development of the transportation system by dedicating or reserving needed rights-of-way, by constructing street improvements to serve new development, and by providing bicycle or pedestrian improvements when appropriate.

Goal 7: Access Management

Address state access management standards as outlined in OAR 734-051 for OR 223 Kings Valley Highway and Dallas-Rickreall Highway, and identify access management strategies for city collectors and arterials.

Objectives

- Develop and apply access control measures (e.g., driveway and public road spacing, median control and signal spacing standards) that are consistent with the functional classification of roads and which limit development on rural land to rural uses and densities.

- Identify opportunities for and work with property owners to develop creative approaches to access management off the arterial street network.
- Require all new subdivision development to comply with access standards as described in City Ordinance.
- Ensure consistency with access management strategies outlined in this TSP.

Goal 8: Transportation Funding

Identify reasonable potential funding sources and a funding strategy for transportation improvements included in this TSP.

Objectives

- Identify a range of funding opportunities for transportation improvements, coordinating with County, State, and Federal agencies.
- Prepare a funding strategy that includes priorities and proposed timelines for transportation improvement projects.
- Develop proposed improvements to a sufficient level of detail to qualify for federal and/or state funding of engineering and construction phases.

Goal 9: Safety

Provide a transportation system that maintains adequate levels of safety for all users.

Objectives

- Identify safe connections for vehicles, bicycles, and pedestrians across OR 223 Kings Valley Highway and Dallas-Rickreall Highway.
- Improve safety at locations where roads cross bicycle, pedestrian, and rail facilities.
- Undertake, as needed, special traffic studies in problem areas, such as around schools, to determine appropriate traffic controls to effectively and safely manage vehicle and pedestrian traffic.

Goal 10: Environment

Provide a transportation system that balances transportation services with the need to protect the environment and significant natural features.

Objectives

- Promote a transportation system that encourages energy conservation, in terms of efficiency of the roadway network and the standards developed for street improvements.
- Balance transportation needs with the preservation of significant natural features and viewsheds.

- Encourage use of alternative modes of transportation such as transit, bicycling and walking that reduce impacts to the natural environment.
- Minimize transportation impacts on wetlands and wildlife habitat.

Organization of This TSP

The Dallas TSP is organized into nine sections as follows:

- Section 1 explains the purpose and benefits of the TSP, the regulatory requirements behind the plan, the plan's public involvement component, and the plan's goals and polices.
- Section 2 summarizes relevant information from state, regional, and local planning and policy documents and discusses its relation to the TSP.
- Section 3 describes the existing study area and its pedestrian, bicycle, transit, and roadway transportation network. This section analyzes current traffic operations and safety conditions, and identifies existing deficiencies by mode.
- Section 4 forecasts future (2025) growth in Dallas and distributes this growth onto the transportation network. An operational analysis of the future no-build network is conducted and a summary of future transportation needs is listed.
- Section 5 describes the roadway, bicycle, and pedestrian alternatives that were evaluated, and depicts the evaluation process.
- Section 6 summarizes current access spacing along the two state highways in the study area, and analyzes various access management treatments that could be adopted by the City.
- Section 7 details the modal plans for the roadway, transit, pedestrian, bicycle, rail, and air, water, and pipeline transport facilities.
- Section 8 provides planning-level cost estimates for recommended projects, lists current funding sources used by the City, and identifies potential revenue sources to fund recommended projects.
- Section 9 contains language to assist the City in revising local codes and ordinances to implement the TSP.

SECTION 2

Findings from Plan and Policy Review

This section summarizes the plans and policies at the federal, state, regional, and local levels that directly influence transportation planning in the city of Dallas. Although each document reviewed contains many policies, only the most pertinent policies and information are presented to help focus the discussion. This section provides a policy framework for the remainder of the Dallas TSP process, and new policies considered as part of this study should be consistent with the currently adopted policies listed. This review also serves as the basis for identifying policies that may be out-of-date or inconsistent with other policies and can serve as the basis for updating policies to reflect current conditions and to achieve consistency with other local, regional, state, and federal plans.

Documents Reviewed

The following federal, state, regional, and local documents were reviewed. The general intent of these documents and the relevance to system and facility plans are summarized in the remainder of this TSP section.

- Transportation Equity Act for the 21st Century
- 23 CFR 450
- 49 CFR 613
- Statewide Planning Goals
- 1992 Oregon Transportation Plan
- 1999 Oregon Highway Plan
- Oregon Highway Plan Implementation Handbook
- 1995 Oregon Bicycle and Pedestrian Plan
- 2001 Oregon Rail Plan
- Freight Moves the Oregon Economy (1999)
- Western Transportation Trade Network Phase II Final Report (1999)
- 1997 Oregon Public Transportation Plan
- 1995 Oregon Transportation Safety and Action Plan
- Transportation Planning Administrative Rule
- Transportation System Planning Guidelines
- Access Management Administrative Rule
- Statewide Congestion Overview for Oregon (1998)
- Willamette Valley Transportation Strategy (1995)

Federal Policies

Potentially applicable federal transportation planning policies are the Transportation Equity Act for the 21st Century (TEA-21), 23 CFR 450, and 49 CFR 613. TEA-21 changed transportation planning activities for states and metropolitan planning organizations (MPOs) originally instituted by the Intermodal Surface Transportation Efficiency Act of 1991

(ISTEA). The regulations for these state and MPO planning activities are specified in 23 CFR 450 and 49 CFR 613. Dallas does not qualify for membership in an MPO.

State Policies

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of 19 statewide planning goals. The Transportation Planning Rule and the transportation system plans identified therein are results of implementation of the Goal 12—Transportation. Oregon's statewide goals are achieved through local comprehensive planning, of which transportation system plans are a part. The goals that apply to transportation system planning are described below. Other goals may apply depending on the area addressed by transportation system or facility plan.

Goal 1—Citizen Involvement: Develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.

Goal 2—Land Use Planning: Establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land to assure an adequate factual base for such decisions and actions.

Goal 4—Forest Land: This goal defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

Goal 9—Economic Development: Provide adequate opportunities for a variety of economic activities vital to the health, welfare, and prosperity of Oregon’s citizens.

Goal 11—Public Facilities and Services: Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

Goal 12—Transportation: Provide and encourage a safe, convenient and economic transportation system.

Goal 13—Energy Conservation: Conserve energy.

Goal 14—Urbanization: Provide for an orderly and efficient transition from rural to urban land use.

Regional and Local Plans and Policies

1992 Oregon Transportation Plan

The Oregon Transportation Plan (OTP) is a policy document developed by ODOT in response to the federal and state mandates for systematic planning for the future of Oregon's transportation system. It recognizes the need to integrate all modes of transportation and encourages the use of the mode that is the most appropriate for each type of travel. The Plan defines goals, policies and actions for the state for the next 40 years. The Plan’s System Element identifies a coordinated multimodal transportation system, to be developed over the next 20 years, which is intended to implement the goals and policies of the Plan. The goals and policies of the OTP cover a broad range of issues. The goals and policies most directly applicable to transportation system and facility plans are as follows:

Goal 1: Characteristics of the System
Policy 1A – Balance
Policy 1B – Efficiency
Policy 1C – Accessibility
Policy 1D – Environmental Responsibility
Policy 1E – Connectivity among Places
Policy 1F – Connectivity among Modes and Carriers
Policy 1G – Safety

Goal 2: Livability
Policy 2A – Land Use
Policy 2B – Urban Accessibility
Policy 2C – Relationship of Interurban and Urban Mobility
Policy 2D – Facilities for Pedestrians and Bicyclists
Policy 2E – Minimum Levels of Service
Policy 2H – Aesthetic Values

Goal 3: Economic Development
Policy 3B – Linkages to Markets
Policy 3E – Tourism

Goal 4: Implementation
Policy 4G – Management Practices
Policy 4L – Federal and Indian Tribal Governmental Relationships
Policy 4M – Private/Public Partnership
Policy 4N – Public Participation

1999 Oregon Highway Plan

The 1999 Oregon Highway Plan (OHP) is one modal element of the Oregon Transportation Plan. The OHP defines the policies and investment strategies for Oregon's state highway system over the next 20 years. Regional and local transportation system plans (TSPs) must be consistent with the State Transportation System Plan, which includes the OHP. OHP policies requiring consistency in TSPs are as follows:

Policy 1A: State Highway Classification System. The state highway classification system includes six classifications: Interstate, Statewide, Regional, District, Local Interest Roads, and Expressways. The OHP emphasizes designation of Expressways as a subset of Statewide, Regional and District Highways to provide a high level of access control along highway segments (long access spacings and limited turning movements).

- *Highway 223 through Dallas is classified as a District Highway. It is not designated as an expressway.*

Policy 1B: Land Use and Transportation. This policy recognizes the role of both state and local governments regarding the state highway system and calls for a coordinated approach to land use and transportation planning. The policy identifies the designation of highway segments as Special Transportation Areas (STAs), Commercial Centers, and Urban Business Areas (UBAs). Within STAs and UBAs, highways may be managed to provide a greater level of access to businesses and residences than might otherwise be allowed. Commercial Centers encourage clustered development with limited to access to a state highway.

– *One segment of Highway 223 through downtown Dallas is designated as an STA. The boundaries of the STA are the Kings Valley Highway (Main Street and Jefferson Street) between Academy Street and Washington Street. The City is recommending that ODOT classify Highway 223 in the vicinity of the north Dallas intersection be classified as an UBA. The boundaries of this proposed UBA are the Kings Valley Highway and Dallas-Rickreall Highway between Polk Station Road and Walnut Avenue.*

Policy 1C: State Highway Freight System. This policy calls for balancing the need to move freight with other highway users by minimizing congestion on major truck routes.

– *Highway 223 is not an ODOT designated freight system route.*

Policy 1D: Byways. This policy promotes the preservation and enhancement of scenic byways be considering aesthetic and design elements along with safety and performance considerations on designated byways.

– *Highway 223 is not an ODOT designated scenic byway.*

Policy 1F: Highway Mobility Standards Access Management Policy. This policy provides specific mobility standards for the state highway sections, signalized intersections, and interchanges. Alternative standards are provided for certain locations and under certain conditions.

Policy 1G: Major Improvements. This policy identifies the state's priorities for responding to highway needs: protect the existing system; improve efficiency and capacity of existing system; add capacity to existing system.

Policy 2G: Rail and Highway Compatibility. This policy emphasizes increasing safety and efficiency through reduction and prevention of conflicts between railroad and highway users.

– *The Willamette and Pacific Railroad, which serves Dallas, does not cross any state highways within the city.*

Policy 3A: Classification and Spacing Standards. This policy addresses the location, spacing and type of road and street intersections and approach roads on state highways. It includes standards for each highway classification, including specific standards for Special Transportation Areas (STAs) and Urban Business Areas (UBAs).

– *Relevant spacing standards for Highway 223 within the Dallas UGB range from 175 feet to 700 feet. See Section 7 for more information.*

Policy 4A: Efficiency of Freight Movement. This policy emphasizes the need to maintain and improve the efficiency of freight movement on the state highway system.

Oregon Highway Plan Implementation Handbook

The Oregon Highway Plan Implementation Handbook contains information interpreting the application of policies and actions in the OHP, particularly relating to land use and transportation policy. The Handbook informed the discussion of requirements for Expressway, STA, UBA, and Commercial Center plans in the summaries. Also taken from the Handbook are the tables and figures illustrating the OHP access management policies and the Access Management Rule (OAR 734-051). The Handbook does not provide any policy direction not contained in other plans, policies, or rules.

1995 Oregon Bicycle and Pedestrian Plan

The Oregon Bicycle and Pedestrian Plan provides guidance to regional and local jurisdictions for the development of safe, connected bicycle and pedestrian systems. The plan is a modal element of the Oregon Transportation Plan. The plan includes two major sections: policies and implementation strategies; and design, maintenance and safety information. The plan also outlines the elements of the bicycle and pedestrian plan required for transportation system plans. The goal of the plan is "To provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking."

2001 Oregon Rail Plan

The 2001 Oregon Rail Plan includes two major elements: freight and passenger. The 2001 Rail Plan identifies federal and state policies applicable to passenger and freight rail planning, but does not identify any additional policies specific to the plan. The freight element describes existing conditions in the different regions of the state and improvements that are needed. It also identifies issues that should be considered in rail planning during local land use planning like preparation of a TSP and comprehensive plan policies to support the TSP. The passenger element identifies the need or feasibility of certain passenger and commuter rail improvements in Region 2. The plan also suggests criteria for determining if an area could support a commuter rail line.

1997 Oregon Public Transportation Plan

The Oregon Public Transportation Plan forms the transit modal plan of the Oregon Transportation Plan. The vision guiding the public transportation plan is as follows:

- A comprehensive, interconnected and dependable public transportation system, with stable funding, that provides access and mobility in and between communities of Oregon in a convenient, reliable and safe manner that encourages people to ride
- A public transportation system that provides appropriate service in each area of the state, including service in urban areas that is an attractive alternative to the single-occupant vehicle, and high-quality, dependable service in suburban, rural, and frontier (remote) areas
- A system that enables those who do not drive to meet their daily needs
- A public transportation system that plays a critical role in improving the livability and economic prosperity for Oregonians."

The plan contains goals, policies, and strategies relating to the whole of the state's public transportation system. The plan is intended to provide guidance for ODOT and public transportation agencies regarding the development of public transportation systems. The OPTP also identifies suggested minimum levels of service, by size of jurisdiction, for fulfilling its goals and policies. The suggested minimum levels of service applicable to a city with less than 25,000 residents:

- Offer services to the general public to provide a modal alternative to single-occupant automobile travel.
- Provide open access to intercity passenger terminals for all intercity carries.
- Coordinate local public transportation services with intercity rail services to provide for timely and convenient connections.
- Provide dial-a-ride services to the general public on weekdays.
- Provide peak period commuter services.
- Provide hourly off-peak public transportation service.
- Provide a guaranteed ride home program to all users of the public transportation system and publicize it well.
- Provide park-and-ride facilities along transit route corridors to meet reasonable peak and off-peak demand for such facilities.
- Incorporate local public transportation services into local land use development, where appropriate.
- Provide at least 1.7 annual hours per-capita of public transportation with fixed-route, dial-a-ride or other service types.
- Provide at least one accessible vehicle for every 40 hours of service.
- Provide ridematching and demand management programs.

The OPTP also provides suggested standards for intercity bus service. These suggestions are as follows:

- Provide hourly service to major communities within the Willamette Valley in conjunction with passenger rail service.
- Provide service on a daily basis for round trip purposes, for an incorporated city or group of cities within 5 miles of one another having a combined population of 2,500 and located 20 miles or more from the nearest city with a larger population and economy.
- Provide a coordinated, centralized scheduling system in each county and at the state level for rural and frontier areas.
- Coordinate intercity bus services with intercity senior and disabled services, local senior and disabled services and local public transportation services.

1995 Oregon Transportation Safety Action Plan

The Oregon Transportation Safety Action Plan forms the safety element of the Oregon Transportation Plan (OTP). The intent of the plan is to improve safety on Oregon's highways for all users. The policy for safety in the OTP (Policy 1G) is as follows: "It is the policy of the State of Oregon to improve continually the safety of all facets of statewide transportation for system users including operators, passengers, pedestrian, recipients of goods and services, and property owners." Many of the actions identified in the plan are programmatic in nature and may not be addressed best through transportation system or facility plans. The following lists the actions that TSPs and corridor plans could address best:

Action 19--Safety Considerations in Transportation Planning Documents
Action 20--Access Management
Action 27--Airports and Surrounding Land Uses
Action 64—Rail Crossing Safety

Transportation Planning Rule (OAR 660-012)

The Transportation Planning Rule (TPR), OAR 660 Division 12, implements Oregon's Statewide Planning Goal 12 (Transportation) and promotes the development of safe, convenient, and economic transportation systems that reduce reliance on the automobile. The TPR requires the preparation of regional transportation systems plans by metropolitan planning organizations (MPOs) or counties and local TSPs by counties and cities. TSP requirements vary by type (regional vs. local) and community size. Through TSPs, the TPR provides a means for regional and local jurisdictions to identify long-range (20-year) strategies for the development of local transportation facilities and services for all modes, to integrate transportation and land use, to provide a basis for land use and transportation decision-making, and to identify projects for the State Transportation Improvement Program. TSPs need to be consistent with the State Transportation Plan and its modal and multimodal elements.

Preparation of this TSP follows the requirements of the TPR. The TPR requires the determination of transportation needs and the development of modal plans (the road system, public transportation, bicycles, pedestrians, and air, rail, water, and pipeline transportation) to meets those needs. These plans must include an inventory of existing services and facilities and a system of planned facilities, services and major improvements, indicating their location and who is responsible for providing them. Preparation of these plans includes the evaluation and selection of system alternatives, which include the following elements: improvements to existing facilities or services; new facilities and services; transportation system management measures; demand management measures; and a no build system alternative. The evaluation and selection of alternatives is based on consistency with the community's comprehensive plan; consistency with state and federal standards for the protection of air, water, and land; minimization of adverse social, economic and environmental impacts; minimization of conflicts and facilitation of connections between transportation modes; avoidance of relying on one principal transportation mode; and reduction of the reliance on the automobile. The TSP also includes a financing plan.

The TPR also requires communities to amend their land use regulations to implement the TPR and their TSPs. Table 1-3 in Section 1.4.6 evaluates the Dallas Development Code for consistency with the TPR. Where inconsistencies occur, changes are recommended.

Access Management Rules (OAR 734-051)

OAR 734-051 states that the purpose of the rules is to govern the issuance of permits for approaches onto state highways. The policy promotes the protection of emerging development areas rather than the retrofit of existing built-up roadways. The rules also provide access management spacing standards for approaches for various types of state roadways and for interchanges. OAR 734-051-0190 specifies that theses standards are to be used in planning processes involving state highways, including corridor studies, refinement plans, state and local TSPs, and local comprehensive plans. The access management rules also include provisions for UBAs, and STAs, as discussed in the OHP. The access management rules also describe the development of access facility management plans and interchange area management plans.

Regional and Local Plans and Policies

Willamette Valley Transportation Strategy (1995)

The Willamette Valley Transportation Strategy (WVTS) is a multimodal element of the OTP. The WTVS identifies strategies for addressing eleven key issues influencing transportation development in the Valley. These strategies address the following issues:

Highways/Roadways

- Select highway projects that maximize the net benefits to the Valley's transportation system as a whole.
- Coordinate highway projects with land use policies and other transportation improvements.
- Make strategic capacity enhancements to controlled access highways.
- Maintain regional highway linkages upon which rural communities depend to build viable communities.
- Improve north-south and east-west links to the existing state highway system.

Local/Regional Transit

- Provide transit service from metropolitan centers to neighboring cities with populations of 2,500 or more.

Freight

- Improve local and state highway networks that provide direct connections to industrial areas and intermodal facilities such as rail/truck reload centers and air and marine ports.

Bicycles and Pedestrians

- Include provisions for bicycle and pedestrian use in all new facilities and major construction.
- Build a stronger network of bicycle and pedestrian facilities, including routes off highway rights-of-way.

Interchange Development

- Encourage local governments to adopt land use policies and implement transportation strategies that help achieve planned interchange utilization.

Transportation Demand Management Programs (TDM)

- In cooperation with the state, local jurisdictions develop transportation demand management programs which educate and inform the public about motor vehicle use.
- Institute or expand programs such as ridesharing, park-and-ride, transit promotion and parking management, especially in metropolitan areas.
- In partnerships between public and private sectors, expand programs such as trip reduction (commute options), flex time, telecommuting and parking "cashout" programs, especially in metropolitan areas for both public and private employees.
  - Coordinate employer-based programs with community transportation plan objectives.
  - Expand prepaid group transit pass programs in local communities.

User Fees

  - Increase parking prices in urban areas of the Valley through a variety of means.
  - Introduce peak period pricing techniques on key transportation facilities.

The strategies emphasize connections between places and modes, reduction of reliance on the automobile, development of facilities with maximum benefit for the Valley, and compact development.

Polk County Transportation Systems Plan (1998)

The Polk County Transportation Systems Plan identifies goals and policies for the county's various transportation systems as well as specific projects. These goals, policies, and projects should be taken into consideration in the development of the Dallas TSP because of potential system connections as well as jurisdictional interests in the city's urban growth boundary. The city and the county have an urban growth management agreement that addresses the coordination of transportation issues. Pertinent information from that agreement is presented in Section 1.4.5.

Goals and Policies

- **Goal 1**. To provide a convenient, economic, energy efficient, reliable, and safe multimodal (road, rail, air, public transportation, waterway, bicycle, pedestrian and pipeline) transportation systems for all users; including the young, elderly, disabled, and the disadvantaged.

- **Policy 1-3.** Polk County will discourage direct access from adjacent properties onto those highways designated as arterials whenever alternative access can be made available.
- **Policy 1-6.** Polk County shall explore options to reduce road mileage under the county's jurisdiction by working with the cities in Polk County to transfer the jurisdiction of county roads for maintenance and improvement when urbanization occurs. This will occur when the road functions as a city street and/or when the urban type development makes it apparent that city forces are better equipped to do the work.
- **Policy 1-7.** Polk County will strive to maintain a Level of Service (LOS) A on all county arterials and collectors, and will initiate corrective action to prevent degradation below LOS C.
- **Policy 1-9.** Polk County does not currently designate any truck routes; however, any load limited bridges or roads may prevent trucks from using some routes from time to time.
- **Policy 1-10.** Polk County will evaluate the need for park-and-ride facilities when realigning County roadways and before disposing of resulting surplus right-of-way.
- **Policy 1-11.** Polk County will work with private companies and public agencies to establish an economically feasible public transportation system appropriate to the needs of its citizens, including the disadvantaged and disabled.
- **Policy 1-12.** Polk County will use every practical opportunity to enhance the intermodal connectivity of its transportation system.

- **Goal 2.** To maintain an ongoing transportation planning process keyed to meet the needs of the traveling public and coordinated among the state, regional, and local jurisdictions.
  - **Policy 2-1.** Polk County will continue to coordinate transportation planning with and consider the needs of its cities, other counties, the region, and the state. The county will support the transportation planning efforts of all its municipalities.
  - **Policy 2-7.** Polk County will promote and encourage carpooling.
- **Goal 3.** To maintain a transportation system supportive of a sustained, geographically distributed and diversified economy.
  - **Policy 3-1.** Polk County will encourage rural residential, commercial and industrial development where such development has access to more than one mode of transportation.
  - **Policy 3-2.** Polk County recognizes the importance of resource-related uses, such as agriculture and forestry to the local economy, and the need to maintain a

transportation system that provides opportunities for the harvesting and marketing of agricultural and forest products.

- **Policy 3-3.** Polk County will resist the abandonment of active railroad lines which contribute to the economic viability of the county.
- **Policy 3-5.** Polk County encourages and supports the improvement of rail conditions to maintain rail service as an effective mover of goods. Concurrently, the county supports safety improvements at rail crossings.

- **Goal 4.** To implement a level of transportation development which positively contributes to Polk County's livability.
  - **Policy 4-3.** To prevent exceeding planned capacity of the transportation system, Polk County will consider road function, classification, and capacity as criteria for comprehensive plan map and zoning amendments/changes.
  - **Policy 4-4.** Polk County will strive to take advantage of technologic advances to improve the transportation system.

Proposed Projects

Road and Intersection Improvement Projects. Although the Polk County TSP does not propose any road or intersection improvements within the City of Dallas, two projects recommended in the County TSP would serve City of Dallas residents. These projects are the extension of Webb Lane to connect with the Kings Valley Highway north of Dallas city limits, and the extension of James Howe Road northward to connect with the newly extended Webb Lane. These projects are also recommended as part of the Dallas TSP. The TSP states that "Polk County will purchase or require the dedication of right-of-way or obtain easements for these future road locations as the affected properties are partitioned or subdivided. "

Public Transportation. The Polk County TSP recommends the implementation of a commuter shuttle service between Dallas and Salem, starting in approximately 2006. The commuter shuttle service would be composed of two to three buses with a capacity of 20 to 25 passengers and would run during the a.m. and p.m. peak periods. The Polk County TSP also outlines a potential test period and potential costs and funding.

The Polk County TSP also recommends the coordination of para-transit services in two regions: Monmouth/Independence and Dallas. Para-transit services are the most commonly available public transportation services in Polk County and its communities. Polk County Mental Health is envisioned as the lead to organize existing service providers to overcome operating differences and to maximize resources by coordinating and exchanging services.

Bicycle and Pedestrian Systems. The Polk County TSP lists conceptual bikeway, road, and intersection projects. One project is identified as a possible joint venture with Dallas. The project is the construction of a 6-foot-wide paved shoulder contiguous to each traffic lane on Ellendale Road from Rueben Boise Road to James Howe Road.

City of Dallas Evaluation and Recommendations for TPR Compliance (1995)

The policies presented in the TPR Compliance Document are similar to those presented in the Dallas Comprehensive Plan. Please refer to the next section for a listing of these policies. The following presents other pertinent information from the TPR Compliance Document.

Street System

The TPR Compliance Document proposed street improvements, functional classifications, design standards, and access management standards. The street improvements proposed in the TPR Compliance Document are similar to those presented in the Comprehensive Plan (listed on the next page). Map 1 of the Comprehensive Plan document also shows the designated arterial and collector streets.

The street standards presented in the TPR Compliance Document are not consistent with those presented in the DDC. The standards included in the Development Code are the most current and were referenced during the preparation of this TSP.

The 1995 Dallas TSP also identified access management standards. These standards were based on the 1991 Oregon Highway Plan but the standards were never adopted as part of the DDC.

Public Transportation

Options for intra-city public transportation are limited. Elderly and handicapped residents are served by Wheels, a dial-a-ride service that covers Dallas, Monmouth, and Independence. The service may be used by the general public on a space available basis. Other transportation services are directed to a specific client base and are not available to the general public. Dallas does not have an intercity bus service.

Bicycle and Pedestrian Plan

The Bicycle and Pedestrian Plan proposes nine bicycle improvements to connect activity centers and provide a safe system. The routes are primarily shared roadways: routes that are marked with signs and are part of roadway without a painted stripe or other separation. The routes are listed in Table 2-1.

TABLE 2-1. **1995 BICYCLE AND PEDESTRIAN PLAN—PROPOSED IMPROVEMENTS**

Location	Type
Ash St/Miller St	Shared roadway/shoulder bikeway[a]
Maple St	Shared roadway
Kings Valley Hwy/Fairview Ave	Bike lanes
Hayter St/Levens St	Shared roadway
W Ellendale/Orchards/Kings Valley Hwy	Shared roadway/bike bath or sidewalk bikeway
Walnut Street	Shared roadway/bike lane or path
Uglow/Hankel/LaCreole	Shared roadway
Mill St/Uglow	Shared roadway
Rikreall Bridge/Mill St	Shared roadway

The plan does not propose any specific pedestrian improvements, but calls for ensuring a well-connected street system.

City of Dallas Comprehensive Plan Volume I: Goals and Policies (1998)

Transportation Goal

To develop a balanced and safe transportation system that minimizes community disruption and promotes the economic and energy-efficient movement of goods and people around and through the community.

Circulation System Policies

1. The City's transportation system should be fully integrated into the regional and state transportation system.

3. The transportation system shall provide adequate access to all planned land uses and shall:
   - Focus on direct multi-modal access to business districts.
   - Achieve a balanced traffic flow through each section of the City.
   - Reduce congestion on arterial streets by providing alternative transportation routes.

4. The major street network should function so that the livability of neighborhoods is preserved and enhanced. Street design should consider the need for landscaping and noise reduction.

5. The City shall adopt an arterial and collector street system plan to ensure that Dallas continues to develop in a grid system.

6. A system of bicycle and pedestrian facilities should be fully integrated into the transportation system.

7. The City will help provide for the needs of the transportation disadvantaged.

8. The City will develop and use land use and land division regulations that set standards for needed transportation facilities and improvements and direct development patterns that enhance opportunities for pedestrian, bicycle and transit travel.

9. The TSP shall:
   - Encourage alternatives to, and reduce reliance upon, the automobile.
   - Guide comprehensive planning and project development activities.

10. The City shall protect transportation facilities, corridors and sites for their intended functions as identified in this plan.

11. A bridge across Rickreall Creek at Mill Street will be required in the City to support better traffic circulation and an additional north-south traffic route, as shown on Comprehensive Plan Map #1.

Rail Transport Policy

The City shall coordinate with the applicable railroad company to improve rail service and public right-of-way crossings.

Bicycle and Pedestrian Transportation Policies

1. To accommodate the bicyclist and pedestrian now and during the planning period, the City shall plan for bicycle and pedestrian facilities and integrate them into the street circulation system.
2. The facility needs and safety of individuals walking or using their bicycles as a means of transportation should be given priority over the needs of recreationalists. In other words, bike lanes and bike routes should be given first consideration over bike paths, except where the latter clearly provides for both.
3. Bikeways and pedestrian ways should connect residential neighborhoods to schools, parks, shopping areas, and places of work.
4. Bicycle parking facilities shall be required as part of new multi-family residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park-and-ride lots.
5. Facilities providing safe and convenient pedestrian and bicycle access within and from new subdivisions, planned developments, shopping centers, and industrial parks to nearby residential areas, transit stops and neighborhood activity centers, such as schools, parks and shopping shall be required. This shall include:
   - Sidewalks along arterials and collectors
   - Bikeways as provided in the Bicycle and Pedestrian Plan
   - Areas and developments identified in this policy should be connected with separate bike or pedestrian ways, where appropriate to minimize travel distance
6. Internal pedestrian circulation in new office parks and commercial developments shall be provided through the master planning, design review and planned development processes. To achieve this objective, methods such as clustering buildings, construction of pedestrian ways or skywalks, and similar techniques shall be considered.

Street Improvement Policies

Developer's Obligation

All new development shall be responsible for providing an adequate vehicular, bicycle and pedestrian access through the following methods:

1. All streets and bicycle and pedestrian facilities within a new subdivision or development shall be fully improved to City standards.
2. Owners of abutting properties shall pay the cost of abutting street improvements, including the paved surface, curbs, sidewalks, bicycle facilities and drainage to City standards.
3. "Over-width" street improvements (greater than local street standards) may be paid for with funds accumulated in the System Development Charge Fund as determined by City as to the need.
4. Benefiting property owners may be required to sign a "non-remonstrance" agreement stating their willingness to participate in future off-site street improvements on a proportional, "fair share" basis.

Transportation Project Funding. To plan for and fund needed transportation projects, the City should consider the following methods:

1. Local improvement districts (LID)
2. Initiation of full improvement projects on existing unimproved streets when 50 percent or more of the property abutting said street is developed or improved.
3. Elections to seek voter approval for a serial tax levy or bond measure to be used exclusively for street improvements.
4. Preparation of a 5-year capital improvements program (CIP) to identify alternative funding sources for needed transportation improvement projects.

Access Management Policies

Access Management Methods. The purpose of access management is to ensure the effective functioning of streets, especially arterial and collector streets. To achieve this objective, the City shall:

1. Develop and apply access control measures (e.g., driveway and public road spacing, median control and signal spacing standards) that are consistent with the functional classification of roads and which limit development on rural land to rural uses and densities.
2. Adopt standards to protect future operation of roads, transit ways, and major transit corridors.
3. Provide for the coordinated review of future land use decisions affecting transportation facilities, corridors or sites, including a process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridor or sites.
4. Work with adjacent property owners to develop creative approaches to access management, in light of competing demands on arterial and collector streets.

5. Adopt regulations to provide notice to provide public agencies providing transportation facilities and services, including the Oregon Department of Transportation, of land use applications that affect private access to roads.
6. Adopt regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and levels-of-service of facilities identified in Chapter 7 of the Comprehensive Plan.
7. Remain flexible in its response to future development proposals on its arterial/collector streets, considering creative access solutions but maintaining a firm commitment to negotiating agreements that uphold the objectives of safety and mobility.

Access Management Coordination. Recognizing that the City of Dallas, Polk County, and the Oregon Department of Transportation each have a role to play in effective access management, the City shall cooperate with these agencies in order to:

1. Ensure that ODOT and Polk County are notified of development proposals that impact the state highways or county roads.
2. Maintain an acceptable level of service on county and state roads (good mobility).
3. Minimize capital costs by ensuring efficient use of existing and proposed facilities.
4. Improve safety by minimizing potential conflict points.
5. Improve bicycle/pedestrian access and mobility.

Access Management Techniques. In order to accomplish the access management objectives, the City shall consider access management techniques, such as the following, in the review of development applications:

1. Provide for common driveways (sharing access with adjacent properties)
2. Provide access to collector and local streets
3. Encourage connections between adjacent properties
4. Construct local service roads
5. Avoid offsetting streets and major driveways, especially in commercial areas.

Level-of-Service (LOS) Standards

The Dallas Development Code shall establish “level-of-service” standards that must be met in order for new development to be approved. LOS standards shall be included in the Master Planning, Land Division and Planned Development chapters of DDC and are interpreted by engineering policies on file with the City Engineer.

Level of service (LOS) D or below is considered unacceptable for collector or arterial street links or intersections.

Required System Improvements

Transportation system improvements required to support planned development in Dallas include the following:

- Traffic signals NE Polk Station Road/E Ellendale to support planned mixed commercial/multi-family node at this location.
- Intersection, traffic signal and vehicle movement improvements at Main/SE Hankel, Main/SE and SW Walnut, and SE Jefferson/Washington to support Dallas' downtown and general commercial districts.
- Bridges overall Rickreall Creek at SW Mill/River Drive to facilitate east-west traffic flow through Dallas.
- Intersection improvements at SW Maple/Fairview, SW Oakdale/Fairview and SW Bridlewood/Fairview in southwest Dallas.

Transportation system improvements identified outside the 1996 urban growth boundary (UGB) include:

- A major collector street improvement located north of the UGB, connecting James Howe Road with State Highway 223. The purpose of this street is to provide an alternative (to W Ellendale) truck route through the city. Dallas recognizes that, in order for this street to be constructed, a Statewide Planning Goal exception (to allow an urban facility outside the UGB) would be required, or the UGB itself would have to be amended.
- And, a major collector located immediately to the southeast of the UGB, extending from Fir Villa Road to the Monmouth Cut-off. This extension is necessary to provide an alternative (to E Ellendale) truck route through the city, and to serve the southeast industrial area. Dallas proposes to expand the UGB to include industrial land abutting this road to the west.

Street Standards

Street standards are described in the TSP and have been incorporated into the Dallas Land Division Ordinance.

Dallas-Polk County Urban Growth Management Agreement

The Dallas-Polk County Urban Growth Management Agreement is an agreement between the city and the county regarding the responsibilities of both parties relating to the development of land and the provision of services inside and outside the Dallas urban growth boundary. The following provisions relate to the provision of urban services, which includes streets dedicated and developed to urban standards.

Article III—Annexation and the Provision of Urban Services

1. Annexation to the City shall be required for the approval of urban development within the Dallas UGB or the provision of urban services within Dallas UGB.
2. The City shall be the sole provider of urban services within the UGB.

Dallas Development Code (2002)

The Dallas Development Code (DDC) combines zoning, specified use standards, development guidelines and standards (including street standards), partition and use standards, administration and procedures, and application requirements in one ordinance.

Table 2-2 at the end of this section summarizes Transportation Planning Rule (TPR) requirements from OAR Section 660-012-0045, and indicates where the DDC does or does not comply with the TPR and the steps that can be taken to comply.

The following sections of the DDC are pertinent to the TSP:

4.2.30 Streets

Required public street improvements shall meet the following design standards:

(1) **Streets and Highways**. Streets, roads, or highways shall be in alignment with existing streets in the vicinity of the proposed land division, either by continuing the existing center lines or by connection with the suitable curves.

(a) Streets shall conform to the location, alignment, and width as indicated by the Development Official.

(b) All streets or roads shall intersect at or as near to right angles as practicable.

(2) **Dedication of a Right-of-Way**. Right-of-way dedication shall be required of land divisions or development where:

(a) Indicated on adopted plans or there is a clearly defined public purpose; and

(b) There is a roughly-proportional relationship between the impact of the development and the dedication requirement.

(3) **Continuation of Dead-End Streets**. When it appears necessary to continue a street into a future land division or adjacent acreage, streets shall be platted to the boundary of the land division without a turnaround.

(4) **Street - Residential Driveway Grades**.

(a) Street grades shall not exceed eight percent, unless the Commission (through a Type III process and after considering engineering and lot layout alternatives) finds that topographic conditions require a steeper grade and that no reasonable design alternative exists.

(b) Driveway grades shall not exceed fifteen (15) percent, unless approved by the Development Official through a Type II process, in which case the Development Official shall find that topographic conditions require a steeper grade and that no reasonable design alternative exists.

(5) **Radius at Street Intersection**. The property line radius at street intersections shall be approved by the Director of Public Works.

(6) **Reserve Block**. Reserve blocks controlling the access to public ways, or which will not prove taxable for special improvements, may be required by the

Commission. The land comprising such strips must be placed in the name of the City of Dallas.

(7) **Minimum Street, Sidewalk and Bikeway Standards**. Table 4.2.1 specifies street, sidewalk and bikeway right-of-way, paving and design standards.

Table 4.2.1: Minimum Street, Sidewalk and Bikeway Standards

Type of Street	Right-of-Way	Sidewalks/ Parkrows	Paved Roadway	Bicycle Lane
Arterial Street	80-100' unless more is required by City Engineer	5' sidewalks on both sides; 4' parkrows	52' or more per City Engineer	6' both sides if on adopted plan
Collector Street	70'	5' sidewalks on both sides; 4' parkrows	36-40'	6' both sides if on adopted plan
Local Street	60' if no alley; 50' if alley	5' sidewalks on both sides; 4' parkrows in Mixed Use Nodes	36' if no alley; 32' if alley	6' both sides if on adopted plan
Cul-de-Sacs	50' street + 5' utility easements on both sides; 50' bulb radius + 10' utility easements	5' sidewalks on both sides	32' street + 40' bulb radius	None Required
Ped/Bike Connections	20' pedestrian connection	6' paved walkway with landscaping	Not Applicable	6' both sides if on adopted plan
Alleys	16' residential; 20' commercial	Not required except in Mixed Use Nodes	16' residential; 20' commercial	Not Applicable

(a) Right-of-way and street width shall be determined by the Director of Public Works and recommended to the Commission. When an area within a land division or development review is set aside for commercial uses, or where probable future conditions warrant, the Commission may require dedication of streets to a greater width than indicated by Table 4.2.1.

(b) Wheelchair ramps and other facilities shall be provided as required by the Americans with Disabilities Act (ADA). The lower lip of the wheelchair ramp shall be flush with the roadway surface. Mailboxes and utility cabinets shall not infringe on public sidewalks or accessways.

(c) Bikeways shall be designed and constructed consistent with the design standards in the 1992 Oregon Bicycle Plan, and AASHTO's "Guide for the Development of Bicycle Facilities, 1991."

(d) Street trees of at least 10 feet in height and two inches in diameter shall be installed at not less than 30-foot intervals within all parkrows on arterial and collector streets. The Commission shall determine whether parkrows will be required for local streets. If parkrows are not present, the Commission may require street trees to be installed in the front yards of each lot.

(e) Temporary dead-end streets which may be extended in the future shall have a right-of-way and pavement width that will conform to the development pattern when extended.

(f) Where topographical requirements necessitate either cuts or fills for the proper grading of the streets, additional easements or rights of way shall be required to allow all cut and fill slopes to be within the easements or right-of-way. The Director of Public Works shall determine the required extra width.

(8) **Two-Level Streets.** Where it is determined that two-level streets best serve hillside lots or parcels, the right-of-way shall be of sufficient width to provide on each level space for one sidewalk, and a minimum width of 20 feet for pavement, curbs, and drainage facilities. Between the two street levels and out to the right-of-way lines there shall be space for all cut and fill slopes.

(9) **Street Improvements.** All plans and specifications for street improvements – including pavement, curbs, sidewalks, utilities and surface drainage – shall be approved by the Director of Public Works prior to construction.

(10) **Subdivision Blocks.** Block lengths and widths shall be determined by the distance and alignment of existing blocks and streets adjacent to or in the general vicinity of a proposed land division and by topography, adequate lot size, need for, and direction of flow of through and local traffic.

(a) Blocks shall not exceed 600 feet between street lines unless the adjacent layout or special conditions justify greater length.

(b) Except where topographical or other physical features prohibit it, block widths shall be not less than 200 nor more than 300 feet.

Accessways

Accessways shall be constructed in accordance with the following standards. Where topographical or other conditions such as cul-de-sacs make it necessary or desirable, the Commission may require a walkway through a block on a public right-of-way consistent with Table 4.2.1 and this section. Accessways shall be provided in the following situations:

(1) **In Residential Areas**, where:

(a) a street connection is not feasible, and

(b) the provision of a walkway or bikeway would reduce walking or cycling distance to a school, shopping center, or neighborhood park by 400 feet or more.

(2) **For Schools and Commercial Uses**, where the addition of a walkway or bikeway would reduce walking or cycling distance to an existing or planned transit stop, school, shopping center, or neighborhood park by:

(a) 200 feet; and

(b) at least 50 percent over other available and clearly defined pedestrian routes.

(3) **For Cul-de-Sacs or Dead-End Streets**. The Dallas Comprehensive Plan has already made the policy choice to develop a connecting trail system in association with its riparian corridors, especially Rickreall Creek, and to encourage pedestrian and bicycle connections through to existing streets. Recognizing that accessways are required in most instances, the following factors may be considered should the developer request an adjustment pursuant to Chapter 3.5 of this Code:

(a) Whether other Federal, State or local requirements prevent construction of an accessway; or

(b) Whether the nature of abutting existing development makes construction of an accessway impractical; or

(c) Whether the accessway would cross a designated riparian area and the City has determined that a connecting trail would be inappropriate at any time in the future; or

(d) Whether a cul-de-sac or dead-end street abuts rural resource land in farm or forest use at an urban growth boundary.

(4) **To Adjacent Developments**. When public streets cannot be provided at appropriate intervals, accessways shall be provided to adjacent developments. In no case shall development patterns preclude eventual site-to-site connections, even if such a connection is not feasible at the time of development.

(5) **Fencing.** Accessways shall be screened by a 6-foot fence.

(6) **Pedestrian Circulation in New Business Parks and Commercial Development**. Internal pedestrian circulation in new office parks and new commercial developments shall be provided in development plans through clustering of buildings and construction of pedestrian ways as follows:

(a) Walkways shall connect building entrances to one another and from building entrances to public street entrances.

(b) On-site walkways shall connect with walkways, sidewalks, bike paths, alleyways and other bicycle or pedestrian connections on adjacent properties used or planned for commercial, multi-family, institutional or park use.

(c) Walkways and driveways shall provide a direct connection to walkways and driveways on adjacent developments.

(d) Potential pedestrian connections between the proposed development and existing or future development on adjacent properties other than connections via the street system shall be identified.

(e) The development application shall designate these connections on the proposed site plan or evidence shall be submitted demonstrating that the connection is not feasible.

(f) Rights-of-way or public easements shall be provided for all required walkways which provide a direct connection to adjacent properties.

(g) Accessways shall be located to provide routes that minimize out-of-direction travel for most of the people likely to use the walkway/bikeway, considering terrain, safety and likely destinations.

(h) Accessways shall be as short as possible (not more than 400 feet), and where possible, straight enough to allow one end of the accessway to be seen from the other.

(i) Accessways shall be lighted either by street lights on adjacent streets or pedestrian lighting along the accessway. Lighting shall not shine into adjacent residences.

(j) Pedestrian walkways shall be directly linked to entrances and the internal circulation of the building. The on-site pedestrian circulation system shall directly connect the street to the main entrance of the primary structure on the site.

(k) Walkways shall be at least five feet in paved unobstructed width. Walkways bordering parking spaces shall be at least seven feet wide unless concrete bumpers, bollards, or curbing and landscaping or other similar improvements are provided which prevent parked vehicles from obstructing the walkway.

(l) Pedestrian scale lighting fixtures shall be provided along all walkways. On-site pedestrian walkways must be lighted to a level where the system can be used at night by employees, residents and customers.

(m) Stairs or ramps shall be provided where necessary to provide a direct route. Walkways without stairs shall have a maximum slope of eight percent and a maximum cross slope of two percent. Where walkways provide principal access to building entrances, maximum slope shall conform to ADA (Americans with Disabilities Act) standards. Stairways and ramps shall be at least five feet wide with a handrail on both sides.

(n) Where the pedestrian system crosses driveways, parking areas and loading areas, the system must be clearly identifiable through the use of elevation changes, speed bumps, a different paving material or other similar method.

(o) Walkways on private property that provide direct links between publicly-owned pedestrian routes shall be placed in public easements or be dedicated to the public.

Table 2-2 summarizes Transportation Planning Rule (TPR) requirements from OAR Section 660-012-0045, and indicates where the current Dallas Development Code does or does not comply with TPR and recommends steps that can be taken to comply.

TABLE 2-2
TPR REQUIREMENTS AND DALLAS LAND USE REGULATIONS

TPR Requirement (OAR 660-012-0045)	**Dallas Development Code (DDC) Compliance/Recommendations**
(1) Each local government shall amend its land use regulations to implement the TSP.	
(b) A transportation facility, service, or improvement	The DDC does not explicitly address transportation

TABLE 2-2
TPR REQUIREMENTS AND DALLAS LAND USE REGULATIONS

TPR Requirement (OAR 660-012-0045)	Dallas Development Code (DDC) Compliance/Recommendations
may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment.	facilities, services, or improvements that may be permitted outright. Recommend that the DDC be amended to do so.
(c) Local governments shall amend regulations to provide for consolidated review of land use decisions required to permit a transportation project.	The DDC does not explicitly address the consolidated review of land use decisions necessary to permit a transportation project. Recommend that the DDC be amended to do so.
(2) Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities for their identified functions.	
(a) Access control standards	While the DDC contains some provisions related to access, such as block length, it does not address other standards such as access points or access spacing. Recommend that the DDC be amended to include these standards based on the results of the TSP Update.
(b) Standards to protect the future operations of roadways and transit corridors	The DDC does not expressly address standards to protect future operation of roadways, like level of service or access controls. Recommend that the DDC be amended to include these standards based on the results of the TSP Update.
(c) Control of land use around airports	Dallas does not have an airport within its city limits or urban growth boundary.
(d) Coordinated review of future land use decisions affecting transportation facilities	Sections 3.7.40(1)(b)(iii) of the DDC allows the city to require the preparation of a traffic impact study, which at a minimum needs to demonstrate that proposed amendment does not degrade traffic operations below a certain LOS. In addition, Section 3.7.40(2) requires that comprehensive plan map and street designation amendments address the TPR and transportation policies of the Dallas Comprehensive Plan.
(e) Process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities	Section 3.3.70 of the DDC allows the city to apply conditions to approvals to ensure the provision of adequate public facilities, including transportation facilities.
(f) Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of: land use applications that require public hearings, subdivision and partition applications, applications which affect private access to roads, applications within airport noise corridor and imaginary surfaces which affect airport operations.	Section 1.3.60 of the DDC identifies notice requirements for Type III and Type IV actions, which include those actions listed in OAR 660-012-0045(f). These notification requirements do not include specific mention of ODOT or any other transportation facility provider like the County. Recommend the DDC be amended to include such notice requirements.
(g) Regulations assuring amendments to land use designations, densities, design standards are consistent with the function, capacities, and levels of	Sections 3.7.40(1)(b)(iii) of the DDC allows the city to require the preparation of a traffic impact study, which at a minimum needs to demonstrate that a proposed

TABLE 2-2
TPR REQUIREMENTS AND DALLAS LAND USE REGULATIONS

TPR Requirement (OAR 660-012-0045)	Dallas Development Code (DDC) Compliance/Recommendations
service of facilities designated in the TSP.	amendment does not degrade traffic operations below a certain LOS. In addition, Section 3.7.40(2) requires that comprehensive plan map and street designation amendments address the TPR and transportation policies of the Dallas Comprehensive Plan. While these requirements address the intention of this TPR requirement, the lack of a clearly adopted level of service and capacity standards for the city's streets make compliance difficult to define. Recommend that the DDC be amended to include these designated street functions, capacities and levels of service based on the results of the TSP Update.
(3) Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth in 660-012-0040(3)(a-d):	
(a) Provide bike parking in multifamily developments of 4 units or more, new retail, office and institutional developments, transit transfer stations and park-and-ride lots	Section 4.5.70 requires a minimum of two bicycle parking spaces at commercial, public and multi-family residential developments.
(b) Provide "safe and convenient" (per subsection 660-012-0045.3(d)) pedestrian and bicycle connections from new subdivisions/multifamily development to neighborhood activity centers; bikeways are required along arterials and major collectors; sidewalks are required along arterials, collectors, and most local streets in urban areas except controlled access roadways	Section 4.2.40(1) provides pedestrian accessways in residential areas where "a walkway or a bikeway would reduce walking or cycling distance to a school, shopping center, or neighborhood park by 400 feet or more." Section 4.2.30(7) requires sidewalks on arterial, collector, and local streets. Bikeways are not specifically required on all arterial and major collector streets. Recommend the DDC be amended to include right-of-way standards that include adequate width on arterials and major collectors for bikeways based on the TSP Update.
(c) Off-site road improvements required as a condition of development approval must accommodate bicycle and pedestrian travel, including facilities on arterials and major collectors	Section 3.3.70 of the DDC provides for conditions of approval necessary to ensure compliance with the DDC. Section 4.2.30(7) identifies minimum street, sidewalk, and bike lane standards, which includes sidewalks on all streets and bike lanes on certain designated streets. Recommend the DDC be amended to include right-of-way standards that include adequate width on arterials and major collectors for bikeways based on the TSP Update.
(e) Provide internal pedestrian circulation within new office parks and commercial developments	Section 4.2.40(6) of the DDC addresses pedestrian circulation in new business parks and commercial developments.
(6) As part of the pedestrian and bicycle circulation plans, local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas.	The 1995 Dallas TSP identifies eight bikeway routes and one bicycle/pedestrian bridge but does not propose any specific pedestrian improvements. Recommend the DDC be amended to reflect facilities proposed as part of the TSP Update.
(7) Local governments shall establish standards for local streets and accessways that minimize pavement width and total ROW consistent with the operational	Section 4.2.30(7) of the DDC identifies minimum street, sidewalk and bikeway standards. These street standards do not explicitly state an intention to

TABLE 2-2 **TPR REQUIREMENTS AND DALLAS LAND USE REGULATIONS**	
TPR Requirement (OAR 660-012-0045)	**Dallas Development Code (DDC) Compliance/Recommendations**
needs of the facility.	minimize pavement width. The TSP will evaluate street standards for each functional classification. The DDC should be amended as necessary to reflect any changes to those standards.

Transportation Impact Report and Congestion Management Plan: Barberry and LaCreole Mixed Use Nodes (1999)

The Transportation Impact Report and Congestion Management Plan for the Barberry and LaCreole Mixed Use Nodes identify impacts of proposed land use changes in these two areas. The report includes the following:

- A description of existing transportation conditions and demand within the nodes and within the study's transportation impact area.
- A description of the increased traffic generation from propose land use plans for the two nodes
- Recommendations for facility improvements and regulatory measures to meet projected demand. The recommended improvements including the following:
  - Upgrade four intersections, including new lane configurations and signals
  - Install five new traffic lights on Ellendale Avenue at the intersections of Kings Valley Highway, Polk Station Road, SE Hawthorne Ave, and SE Fir Villa Road.
  - Realign intersection of E Ellendale Avenue and Kings Valley Highway.
  - Realign intersection of Kings Valley Highway and Polk Station Road.
  - Upgrade Kings Valley Highway along the border of the LaCreole node and E Ellendale Avenue between Fir Villa Road and Kings Valley Highway to arterial standards, including one through lane in each direction, a center left-turn lane, and sidewalks and bike lanes on each side of the street.
  - Construct new collector and local streets.
  - Modify striping from median lane to two-way left-turn lane.
  - Install median barriers as necessary to eliminate left turns to or from driveway access locations.

  The report also suggests some "transportation system management measures:"

  - Provide sidewalks on all new streets and retrofit existing streets as part of adjacent development.
  - Provide bicycles facilities on streets identified as major collector and arterial streets.

- Install a combination bicycle and pedestrian path along the drainageway north of NE Boulevard and between NE Barberry Road and a proposed school complex.
- Support carpools and van pools, dissemination of ride share information, and the addition of park-and-ride facilities.

Oregon Transportation Investment Act Draft Access Management Plan: OR 223 Kings Valley Highway at Dallas-Rickreall Highway (ODOT Key No. 12915)

The draft Access Management Plan establishes the steps to be taken to manage highway access for a transportation improvement project at the intersection of Kings Valley Highway and Dallas-Rickreall Highway. The plan identifies the following actions that needed to take place in conjunction with the implementation of the project:

- **Short-Term Criteria**
  - Close accesses that fall within the new curb radii.
  - Close access where multiple driveways exist to the highway from a single property or property use.
  - Maintain functionality of existing businesses based on existing use.
  - For corner lots with alternative access to local street, close access to highway.
  - Issue access permits to 100% of all accesses constructed by the project.
  - Evaluate site circulation for non-conventional movements at the access throat.
  - Review existing permits for future easement requirements or any condition that may influence the newly constructed access.
  - No full-movement accesses will be allowed within the opening day peak-hour left-turn queue (stacking) areas. The project will implement median control to protect the left-turn queues.
- **Medium-Term Criteria**
  - Allow City and ODOT permitting processes and evaluation along highway to require conformance to long-term criteria.
- **Long-Term Criteria**
  - The TSP shall identify, establish, and implement beltline routes designed to reduce traffic volumes within the project intersections and project area.
  - Meet the spacing standards as defined in the 1999 Oregon Highway Plan.

The plan also identifies certain driveways that would need to be closed.

SECTION 3

Existing Conditions and Deficiencies

This section documents the existing roadway and land use conditions in the city of Dallas and identifies existing transportation deficiencies considered during the development of project alternatives. Included in this section is a description of the project area, a brief inventory of current land uses, a description of existing transportation facilities within the Dallas UGB, and a traffic operations and safety analysis.

Study Area and Land Use

The study area for the TSP, as depicted in Figure 3-1, follows the City's UGB. All transportation facilities[1] within the study area are considered in the TSP.

Dallas is located on the eastern edge of the Coast Range along the Rickreall Creek, approximately 15 miles west of Salem. The City was incorporated in 1874, and serves as the Polk County seat. The study area includes those portions of OR 223 Kings Valley Highway and Dallas-Rickreall Highway within the Dallas UGB.

The City is characterized by relatively flat topography, especially in the vicinity of downtown. Rickreall Creek, providing the City's water supply, flows through the northern edge of the Central Business District (CBD). Ash Creek flows along the southern edge of the CBD, near the Weyerhaeuser Lumber Mill. Together the 100-year floodplains for these two waterbodies comprise more than 500 acres, representing a limiting factor to development in the City.

Residential Characteristics

The population within the Dallas UGB in 2000 was 13,117, and is estimated to have increased to 14,593 by 2005. The Dallas Comprehensive Plan projects population growth in Dallas to increase to 19,043 persons by the year 2020[2]. It is currently the largest urban area in Polk County.

Listed below are some general demographic characteristics of Dallas residents, as obtained from the 2000 Census. Where appropriate, these characteristics are compared to statewide and county-wide averages.

- Dallas consists of 4,672 households.
- The average household size in Dallas is 2.6 persons. Average household size was similar for the State of Oregon and Polk County.
- The median resident age in the City is 36 years. This is similar to state and county median resident ages.

[1] The roadway analysis for the TSP is limited to roadways classified as collectors or arterials.

[2] Population estimate by the Portland State University, Population Resource Center.

- Slightly more than 93 percent of the population of the City of Dallas identified themselves as Caucasian. This is higher than the state average of 87 percent Caucasian residents, and the county average of 89 percent Caucasian residents.
- Ten percent of Dallas residents were living below the poverty level in 1999. This is slightly lower than state (12 percent) and county (11 percent) poverty levels.
- Approximately 15 percent of the adult population holds a college degree or higher.
- Approximately 38 percent of households reported one or more school-age children present in the home. This is substantially higher than the state (31 percent) and county (32 percent) averages.
- There were 4,906 housing units in Dallas in 2000, of which 5 percent were vacant. This is three percentage points lower than the state vacancy level (8 percent) but close to the county level (6 percent).
- Approximately 66 percent of occupied housing units were owner-occupied, while the other 34 percent were renter-occupied. This is similar to the state levels of renter-occupancy (36 percent) but higher than the county (32 percent).
- Much of the current housing stock (28 percent) was built in the 1990's, though another period of growth (23 percent) occurred in the 1970's. More than 12 percent of the current housing stock was built before 1940.

Employment Characteristics

Approximately 5,300 Dallas residents were employed in 2000, slightly less than half the overall population. Table 3-1 provides an overview of the five largest employment sectors in the City—educational, health, and social services; manufacturing; health care and social assistance; retail trade; and public administration.

TABLE 3-1
Largest Employment Sectors (by number of employees) in City of Dallas

Employment Sector	Number Employed
Educational, health and social services	1,322
Manufacturing	858
Health care and social assistance	847
Retail trade	534
Public administration	520

Source: taken from Census 2000 Summary File 3 (SF 3), Table P49.

The major employers in Dallas include a technology manufacturing firm, Dallas Public Schools, Polk County, a Safeway grocery store, Wal-Mart, and a RV manufacturing firm.

Dallas is considered an Enterprise Zone, part of a State of Oregon program to provide incentives for businesses to locate in the city.

The median 1999 household income in Dallas was $35,967. This is lower than the statewide average ($40,916) and the Polk County average ($42,311). This may be due to the types of employment in Dallas, including a large number of social service and retail jobs, which may have lower pay than other types of employment (e.g., professional services, medical care).

Similar to other economies in Oregon, recent years have seen an increase in service-related jobs and a decrease in resource-related jobs. Manufacturing jobs are important to the local economy. Future job projections developed for the City of Dallas Comprehensive Plan projects an increase in service and retail jobs, and a continued decline in resource-related jobs.

Commute Characteristics

For residents living inside the City of Dallas, almost half (43 percent) worked in the City as well. Another 40 percent worked outside the City, and outside of Polk County. The remainder worked outside the City but inside Polk County. Anecdotal evidence demonstrates that the majority of workers that commute outside the county travel to nearby Salem (located in Marion County), which houses state buildings and offices. Average travel time from Dallas to Salem in free-flowing traffic conditions is 25 minutes. This is expected to be higher during typical peak commute periods. Figure 3-2 displays travel time to work for residents of Dallas (aged 16 years and higher). The figure shows two peaks in the worker commute time. The first peak (2,084 workers, approximately 42 percent of total workers outside the home) shows a commute time less than 15 minutes in length. This peak illustrates those Dallas residents that also work in the City. The second peak (893 workers, approximately 18 percent of total workers outside the home) shows a commute time between 30 and 34 minutes in length, roughly the time to travel by automobile between Dallas and Salem during typical peak traffic conditions. The average travel time to work for residents of Dallas is 25 minutes.

The predominant mode of transportation to work for workers aged 16 years and older living in Dallas is the automobile. Of the 5,157 total workers, 4,633 (90 percent) drove to work either alone or as part of a carpool. Of workers driving to work, 3,912 (84 percent) drove alone. This is consistent with other cities the size of Dallas throughout the state. Dallas is also similar to other cities its size in the average number of vehicles per household, in Dallas the average is 1.75 vehicles/household. The "work at home" and "walk" modesplit options were used at roughly the same level, approximately 4 percent with 206 and 203 workers respectively. A total of 74 individuals reported that they commuted to work by bicycle, and only 2 reported the use of transit for the commute to work trip. Census data showing time workers left home to go to work showed a clear peak hour between 7:00 a.m. and 7:59 a.m. Census figures indicated that the departure time for nearly 34 percent of all work trips occurs between 7:00 and 8:00 a.m. This dominant peak indicates a heavy use of the existing roadway network between the hours of 7:00 a.m. and 8:00 a.m. Although the Census does not report departure time from work to home, it is common that a similar, commute peak occurs in the afternoon.

Land Use Characteristics

Figure 3-3 illustrates the current zoning designations for the Dallas UGB. Dallas has two primary commercial centers – one located in downtown and the other in North Dallas. The

North Dallas node is located near the intersection of the Dallas Rickreall Highway and the Kings Valley Highway, referred to as the North Dallas Intersection. The zoning designations for this area are General Commercial (CG) and Neighborhood Commercial (CN). Development in this area is relatively high density commercial, and includes a Wal-Mart, a Safeway grocery store, a Goodwill Industries store, a gas station, an automotive repair facility, fast food chains, and several banks. To the north and west of the intersection are single-family residential developments, and some medium-density and high-density housing developments are located southeast of the intersection.

Dallas's Central Business District (CBD) is located around the one-way couplet system of Main and Jefferson through downtown Dallas. There is a special CBD zoning designation associated with this area. The western edge of the district includes the parcels facing Church Street from the west, while the eastern edge of the district includes the parcels facing Jefferson Street from the east. The northern boundary is the beginning of the couplet near Academy. The southern boundary is Clay Street. Development in the CBD includes a mixture of retail, banks, restaurants, private offices, and government offices. Chemeketa Community College has a facility at the north end of the CBD, offering classes weekdays (approximately 50 classes were offered during the Fall 2004 quarter). There are three churches located in the CBD.

South of the CBD is the Weyerhaeuser Lumber Mill. The mill is located at 1551 Lyle Street and employs 140 people. The mill serves as both an origin and a destination for commercial vehicles (lumber trucks). Lumber products accessing the mill use both the road network and the railroad tracks that traverse the mill site.

Much of the rest of Dallas consists of residential parcels, covering approximately 70 percent of the City's land area. Three mixed use nodes were designated in the Dallas Comprehensive Plan for future development. The first, LaCreole Drive (north of E Ellendale), mixes 30 acres of multi-family residential land with CG. The second, Barberry Node, combines 20 acres of multi-family residential land with CN. The third, Wyatt Node, includes 15 acres of developable multi-family residential land, adjacent to CN.

There are 13 parks in the City of Dallas, including four community parks varying from 20 to 80 acres in size; five neighborhood parks between 2 to 20 acres in size; and four "mini parks" between 0.6 and 1.5 acres in size. In its Comprehensive Plan, Dallas proposes the construction of two additional parks in the City, plus a Park Creek Trail.

Dallas has a total of seven public schools, as listed below:

1. Morrison Alternative Middle School
2. LaCreole Middle School
3. Whitworth Elementary School
4. Lyle Elementary School
5. Oakdale Heights Elementary School
6. Dallas High School
7. Bridgeport Elementary School

In addition, one private school – the Faith Christian School – is located in Dallas, at 2290 E Ellendale.

The City of Dallas has one police station, located at 187 Court Street in downtown Dallas, and one fire station, at the same location. The Dallas City Library is located at 850 Main Street in downtown Dallas.

Pedestrian Facilities

Pedestrian facilities that are accessible and comfortable to use are an essential component of the transportation system. As the *1995 Oregon Bicycle and Pedestrian Plan* (OBPP) explains, virtually everyone is a pedestrian at some point during the day and therefore benefit from accessible facilities. Pedestrians include children walking to and from school, people using wheelchairs or other forms of mobility assistance, people walking to lunch, and people walking to and from their vehicles. In addition, walking meets the commuting, recreational, and social transportation needs for a portion of the population that do not or choose not to drive. The community's pedestrian system also offers recreational opportunities for both local and out-of-town users, potentially stimulating economic growth and tourism.

According to the OBPP, pedestrian facilities are defined as any facilities utilized by a pedestrian. These types of facilities include walkways, traffic signals, crosswalks, curb ramps, and other amenities such as illumination or benches. The City of Dallas has several different types of walkways, which are defined in the OBPP as "transportation facilities built for use by pedestrians and persons in wheelchairs," including the following:

- *Sidewalks:* Sidewalks are located along roadways, are separated from the roadway with a curb and/or planting strip, and have a hard, smooth surface, such as concrete. ODOT standard sidewalk width is 6'; standard sidewalk width in Dallas is 5'. Examples of sidewalks in Dallas are present throughout the downtown and along most major roadways.
- *Shared Use Paths:* Shared use paths are used by a variety of non-motorized users, including pedestrians, cyclists, skaters, and runners. Shared use paths may be paved or unpaved, and are often wider than the average sidewalk (i.e. 10' – 12'). An example of a shared use path in Dallas is the path that connects LaCreole Middle School to the Dallas Aquatic Center. This path connects two major destinations, as well as the adjacent sports complex and skate park.
- *Roadway shoulders:* Roadway shoulders often serve as pedestrian routes in many rural Oregon communities. On roadways with low traffic volumes (i.e., less than 3,000 vehicles per day), roadway shoulders are often adequate for pedestrian travel. These roadways should have shoulders wide enough so that both pedestrians and bicyclists can use them, usually 6' or greater. Many of the roads leading into Dallas rely on roadway shoulders to accommodate pedestrian travel.

Existing Sidewalks

Figure 3-4 shows the city's sidewalk system on roadways with collector status and higher. The Dallas pedestrian system can generally be characterized as comprehensive in certain areas of the city, such as downtown and along most major roadways, and lacking in other areas, such as on the outskirts of town and in developments built before code required sidewalks to be constructed with new development. Sidewalk obstructions, typically mail boxes, overgrown vegetation and utility poles, also impede safe pedestrian travel. Table 3-2 lists arterial and collector streets that currently have sidewalks on both sides of the street:

TABLE 3-2
Pedestrian Facilities along Arterials and Collectors within City of Dallas

Road	From	To
Main Street	SW Cherry Avenue	Dallas-Rickreall Highway
Jefferson Street	SE Maple Street	Dallas-Rickreall Highway
SE Washington Street	SE Uglow Avenue	SW Fairview Avenue
Dallas-Rickreall Highway	SE LaCreole Drive	SW Levens Street
Kings Valley Highway	Dallas-Rickreall Highway	Orchard Drive
SE Uglow Avenue	SW Washington Street	SE Maple Street
SE Miller Avenue	SE Uglow Avenue	SE LaCreole Drive
SE LaCreole	SE Miller Avenue	Dallas-Rickreall Highway
SE Hankel Street	Highway 223	City limits
SE Levens Street	W Ellendale	SE Washington Street
W Ellendale	Dallas-Rickreall	SW Levens
SW Fairview	SW Oakdale	SE Washington Street
SE Barberry Avenue	SE LaCreole Drive	End of road
SE Academy Street	SE LaCreole Drive	End of road
SE Maple Street	Main Street	SE Uglow
SW Academy Street	SW Hayter Street	Main Street
SW Hayter Street	SE Mill Street	End of road
SE Mill Street	SE Lyle Street	End of road

Many local streets in Dallas have sidewalks and all new development is required to construct sidewalks.

Existing Sidewalk Conditions

Existing sidewalk width along arterials and collectors is 5 feet, with no separation from the roadway. Sidewalks in residential areas are 5 feet and, particularly surrounding the downtown core, are often accompanied by 8- to 10-foot planter strips. Development code requires standard 5′ sidewalks for all new development; 4-foot parkrows or planting strips are required on arterial and collector roadways.

The downtown core of Dallas is very pedestrian friendly. Main and Jefferson Streets have 6- to 8-foot sidewalks in excellent condition with a variety of complimentary pedestrian facilities, including textured crosswalks, bulb outs, ADA accessible curb ramps, pedestrian-scale lighting, and sidewalk amenities like benches and trash receptacles.

Many sidewalks along arterials and collectors have old curb ramps that are not in compliance with new ADA standards and guidelines. Other curbs lack ramps entirely. When present, common deficiencies include ramps of insufficient width (less than 36 inches), ramps that are not aligned with the pedestrian flow, excessive slope (maximum of 1:12), excessive cross-slope (maximum of 1:50), no detectable warnings on walking surfaces, inadequate landings, and obstacles in the pedestrian path.

Pedestrian-actuated signal controls in Dallas are mounted inconsistently (some are oriented in the direction of travel, while others the opposite), most lacked tactile markings, and the visual instructions on a few were illegible due to wear. Visually impaired pedestrians would find many major intersections very challenging because of the traffic patterns, inaudible signals, and unprotected pedestrian phases, particularly at the junction of OR 223 – Dallas-Rickreall Highways and Kings Valley Highway with W Ellendale Avenue and Main Street.

Pedestrian Destinations

Major pedestrian destinations are located in the following areas of the city:

- **Downtown**—primarily the area bounded by SW Academy, SE Washington, SE Uglow, and SW Levens, Dallas's downtown is the most accessible area to pedestrians. The compact size, extensive sidewalks and crosswalks, historic buildings, and appealing mixed uses make walking the preferred travel mode. Walking is further enhanced by curb extensions that reduce crossing distance, benches, pedestrian-scale lighting, trash receptacles, and interesting shops.

- **Schools**—Lyle Elementary, Whitworth Elementary, Oakdale Heights Elementary School, LaCreole Middle School, Faith Christian School, Polk Adolescent Day Treatment Center, and Dallas High School. The arterial and collector streets around these schools typically have sidewalks on at least one side of the street, with the exception of Faith Christian School and Polk Adolescent Day Treatment Center, on Dallas-Rickreall Highway. These schools are not located within Dallas city limits, but are within the Urban Growth Boundary.

- **Parks**—Dallas City Park, East Dallas Community Park, Gala Park, Birch Park, Kingsborough Park, Rotary Park, Lyle Sports Complex, LaCreole Sports Complex, Whitworth Sports Complex, and Walnut Park. All of the parks on arterial and collector roadways have 5′ or wider sidewalks.

- **Shopping centers**—primarily along OR 223, particularly Dallas-Rickreall Highway. Commercial shopping areas include Wal-Mart (321 NE Kings Valley Highway), Safeway, Goodwill, and a variety of fast food restaurants and local shopping strips. The stores on OR 223 are accessible by sidewalks on these arterials; however, the high traffic volumes and curb tight sidewalks can make the walking experience uncomfortable.

Employment centers—county and city offices in the downtown core, retail services along OR 223 and Main and Jefferson Streets, and industry along SE Uglow, SW Church and Clow Corner Road. The sidewalks are deficient leading to the industrial areas on SE Uglow and Clow Corner Road. All other employment centers have adequate sidewalks and good connectivity.

Bicycle Facilities

Transportation planning has changed significantly in the last 10 years as cities, counties, and states have adopted policies to encourage planning and design for all transportation modes. Bicycle travel has emerged as an important part of a multimodal transportation system as it offers people alternative ways of traveling. Bicycling also provides a transportation alternative for people who do not or chose not to own vehicles and increases the catchment area for local transit systems.

According to AASHTO's *Guide for the Development of Bicycle Facilities* (1999) and the *Oregon Bicycle and Pedestrian Plan* (1995), there are several different types of bicycle facilities. Bicycles are allowed on all of the roadways in Dallas and the surrounding areas. Bikeways are distinguished as preferential roadways that have facilities to accommodate bicycles. Accommodation can be a bicycle route designation or bicycle lane striping. Shared use paths are facilities separated from a roadway for use by cyclists, pedestrians, skaters, runners, or others. Shared use paths are discussed in the review of existing conditions for the Dallas pedestrian system. The following types of bikeways, recognized by AASHTO and *Oregon Bicycle and Pedestrian Plan,* are found in Dallas:

- ***Shared Roadway****:* Shared roadways include roadways on which bicyclists and motorists share the same travel lane. This is the most common type of bikeway. The most suitable roadways for shared bicycle use are those with low speeds (25 mph or less) or low traffic volumes (3,000 ADT or less).

- ***Signed Shared Roadway****:* Signed shared roadways are shared roadways that are designated and signed as bicycle routes and serve to provide continuity to other bicycle facilities (i.e., bicycle lanes) or designate a preferred route through the community. Common practice is to sign the route with standard Manual on Uniform Traffic Control Devices (MUTCD) green bicycle route signs with directional arrows. The OBPP recommends against the use of bike route signs if they do not have directional arrows and/or information accompanying them. Signed shared roadways can also be signed with innovative signing that highlights a special touring route (i.e., Oregon Coast Bicycle Route) or provides directional information in bicycling minutes or distance (e.g., "Library, 3 minutes, 1/2 mile"). An example of a signed shared roadway in Dallas is SW Levens Street, between W Ellendale Avenue and SW Academy Street.

- ***Shoulder Bikeway****:* These are paved roadways that have striped shoulders wide enough for bicycle travel. ODOT recommends a 6′ paved shoulder to adequately provide for bicyclists; 4′ minimum in constrained areas. Roadways with shoulders less than 4′ are considered shared roadways. Sometimes shoulder bikeways are signed to alert motorists to expect bicycle travel along the roadway. OR 223 from SW Oakdale Avenue south has a shoulder bikeway for approximately 200′.

- ***Bike Lane**:* Bike lanes are portions of the roadway designated specifically for bicycle travel via a striped lane and pavement stencils. ODOT and Dallas standard width for a bicycle lane is 6′. The minimum width of a bicycle lane against a curb or adjacent to a parking lane is 5′. A bicycle lane may be as narrow as 4′, but only in very constrained situations. Bike lanes are most appropriate on arterials and major collectors, where high traffic volumes and speeds warrant greater separation. Bicycle lanes are present on OR 223 (Kings Valley Highway) from approximately Orchard Drive to NE Polk Station Road.

Existing Bikeway Locations

Though Dallas has an established signed shared bicycle route system on local roadways, this Transportation System Plan is limited to studying facilities on roadways with collector status or higher. Figure 3-5 shows the various bikeways on all roads in Dallas. The existing bikeways on the arterial and collector system in the figure are highlighted by a thicker line behind them. The majority of arterial and collector roads do not have designated bicycle facilities. Bicyclists must share the roadway with vehicle traffic and, in locations without sidewalks or paths, with pedestrians.

The bikeway facilities on the arterial/collector system consist of bicycle lanes, shoulder bikeways, and signed shared roadways. Table 3-3 provides an overview of existing bicycle facilities in Dallas. Bicycle lanes are located on OR 223 – Kings Valley Highway from just east of Orchard Drive to NE Polk Station Road and Miller Avenue from west of SE Godsey Road to SE Fir Villa. OR 223 south and W Ellendale Avenue have shoulder bikeways, but only for brief periods and typically only on one side of the roadway. OR 223 - Kings Valley Highway and OR 223 – Dallas-Rickreall Highway have shoulder bikeways. Kings Valley Highway extends from NE Polk Station Road to the city limits and into unincorporated Polk County. Dallas-Rickreall Highway was recently repaved and restriped and has a 5′ - 7 ′ shoulder from the UGB to LaCreole Avenue. There are pinch points at Fir Villa Road where the shoulder narrows to under 1′. Parts of OR 223 – Dallas-Rickreall Highway, SW Levens Street, SW Hayter, and SE LaCreole Drive are signed shared roadways.

TABLE 3-3
Existing Dallas Bikeways

Location	Type
Dallas-Rickreall Highway	Shoulder bikeway
SE Miller Avenue	Bike lane
SE LaCreole Drive	Signed shared roadway
Kings Valley Highway	Bike lane/shoulder bikeway
W Ellendale Avenue	Signed shared roadway/shoulder bikeway
SW Levens Street	Signed shared roadway
OR 223/SW Fairview Avenue	Shoulder bikeway

Existing Bikeway Conditions

Most of the existing marked bikeway facilities have substandard facilities on one side of the roadway. SE Miller Avenue, OR 223 – King's Valley Highway, and W Ellendale Avenue have a wide shoulder or bicycle lane on one side of the roadway (typically 6' – 10') and a either a sub-standard or nonexistent shoulder or bicycle lane on the other side.

The signed shared roadways on SW Levens Street, SW Hayter, and SE LaCreole Drive provide ample room for bicyclists and motor vehicles to share the roadway. High traffic volumes and limited space on OR 223 – Dallas-Rickreall Highway make bicycling a hazardous challenge from SE Uglow to OR 223 – Kings Valley Highway.

Destinations for Bicyclists

Major destinations for bicyclists are primarily the same as those for pedestrians: downtown, schools, employment centers, shopping centers, neighborhood commercial areas, and parks. In addition, OR 223 provides regional connections to other highways and county roads to nearby cities such as Salem, Independence, and Monmouth. Because Dallas is in the heart of the fertile Willamette Valley and borders the foothills of the Coast Range, there are many opportunities for excellent recreational bicycling on low-volume local roadways.

Popular destinations in the City of Dallas include:

- Dallas Aquatic Center, Sports Complex and skate park
- Dallas Public Library
- Downtown
- East Dallas Community Park
- LaCreole Sports Complex
- Kingsborough Park
- Gala Park
- Services along the Dallas-Rickreall Highway

Public Transportation

Cherriots

The Salem Area Mass Transit District (Cherriots) does not currently provide service to the City of Dallas. The closest transit stop to Dallas is bus route #23, which stops at 35th and Belvedere in West Salem. This stop location is roughly 12 miles east of Dallas city limits. A park-and-ride lot is located in Rickreall but is served only when a customer calls to schedule a pickup. An informal park-and-ride location exists in West Salem. Future service to Dallas is mentioned as a possibility in the short-range element of the Strategic Business Plan. In this plan, Cherriots identifies funding to be made available in fiscal year 2008 or later that could be available to explore expanding commuter services to communities near Salem.

Chemeketa Area Regional Transportation System (CARTS)

The CARTS program is a partnership between Marion, Polk, and Yamhill counties. CARTS runs two routes in Polk County, connecting Dallas and Salem. Figure 3-6 provides an overview of transit service and stops in the City. Route 1 starts in Dallas and runs in an easterly direction, serving Rickreall, Salem, Independence, and Monmouth. This service operates six trips each weekday, during the AM and PM peak hours. Route 2 starts in Dallas and runs in a southerly direction (counter-clockwise), serving the same communities. Route 2 operates four trips each weekday, during the AM and PM peak hours. Service is not provided on weekends or holidays. The CARTS service is point-deviated, fixed-route operation, where individuals with disabilities can arrange beforehand for the bus to deviate up to ¾ mile from the fixed route for special pickup.

Adult one-way regional fares on CARTS are $1.50; day passes are $3.00. CARTS provides a connection with Cherriots service in Salem but transfers are not accepted between the two operations. Service is contracted to Oregon Housing Associated Services (OHAS). CARTS operates two passenger buses that accommodate 28 passengers plus two wheelchairs (or 33 passengers when wheelchair locations are not in service). The agency recently received funding to procure a third vehicle of the same size.

CARTS administered a ridership survey in spring 2004, and received 72 completed surveys from riders of the Polk County routes 1 and 2. Almost half of respondents used the CARTS service on a daily basis, and more than three out of four respondents used the service two to three times per week. More than half the riders boarding a CARTS bus in Dallas disembarked in Salem. According to CARTS staff, the service between Dallas and Salem is popular, with ridership reaching bus capacity during peak hour service. The trip purpose for riding CARTS varied equally between work, school, medical, social, and shopping trips. When asked for suggestions for improvements, many riders requested more frequent and weekend service, and additional outreach to the community so that more residents are made aware of the service.

The agency is exploring future service between Salem and Grand Ronde via Dallas, and service between Falls City and Dallas.

Polk County Dial-A-Ride

Polk County Dial-A-Ride service is part of CARTS, serving individuals with mental or physical disabilities. Service is provided for four hours every weekday, corresponding with the AM and PM commute peak. Service is not provided on weekends or holidays. The service is primarily used by customers traveling to and from work.

The Dial-A-Ride operation connects to the CARTS system but will not duplicate its route. This necessitates a transfer for some passengers from Dial-A-Ride to CARTS. As CARTS service operates on approximately 90 minute headways during the AM and PM peak hours, timing transfers between dial-a-ride and CARTS service is of potential concern. The fare payment for the Dial-A-Ride service is $2.00 one-way. Service is operated by OHAS, operating with one 11 passenger van.

Transit funding for this service is provided by state and federal grants.

Rail Facilities

There are no passenger rail facilities within the City of Dallas. Freight rail facilities owned by Western Pacific exist at the south end of the City. This spur line connects the Weyerhaeuser Mill with connections to the Western Pacific mainline approximately 3.5 miles east of the City. The Western Pacific mainline provides rail freight service to Salem, Portland, and Eugene, and other destinations.

There are seven at-grade railroad crossings in the City. None of these facilities are gated.

- Main Street / Birch Street
- Main Street / (between Cherry and Church Streets)
- Uglow Avenue / Birch Street
- Uglow Avenue / (south of Monmouth Cutoff Road)
- Howe Street / Birch Street
- Holman Street / Birch Street
- Godsey Road / Birch Street

The mill transports approximately 50 percent of its product by rail, operating one 6-8 car train daily. Typically this daily train operates during the early morning hours.

Air Transport Facilities

There are no commercial airports within the City of Dallas. The Independence State Airport is located approximately seven miles southeast of Dallas in the City of Independence, and the Salem Municipal Airport is located 15 miles west of Dallas in Salem. The Portland International Airport is located approximately 60 miles away.

A privately-owned airfield north of OR 223 on Orchard Drive closed in 1990.

Pipeline Transport Facilities

There are no pipeline facilities within the Dallas UGB.

Water Transportation Facilities

There are no significant navigable waterways within the Dallas UGB.

Roadway Facilities

The analysis of existing conditions (2004) focuses on roadway geometries, safety, and operational performance. The analysis also considers transit, bicycle, and pedestrian facilities. This section concludes with a summary of deficiencies identified by the project management team.

Ownership

Public roads in the city of Dallas are owned and maintained by two different jurisdictions: ODOT and the city of Dallas. As owners of a roadway, the jurisdiction is responsible for the following:

- Establishing the functional classification
- Maintenance
- Approving construction and access permits

ODOT owns the following facilities within the Dallas UGB:

- Oregon 223 Dallas-Rickreall Highway (State Highway 189) is an ODOT-owned facility. Oregon 223 connects with Salem to the East and to the south connects with Oregon Highway 20 west of Corvallis. The highway joins with State Highway 191 at the North Dallas Intersection and travels through downtown Dallas as one merged route. ODOT classifies the Dallas-Rickreall Highway as a District Highway. The posted speed varies 25 and 45 MPH within the City limits.
- Oregon 223 Kings Valley Highway (State Highway 191) connects with Oregon 22 north of Dallas, providing access to Yamhill County and surrounding communities. Kings Valley Highway is classified as a District Highway by ODOT. The posted speed varies between 25 and 50 mph within the City limits.

The remaining public facilities are owned by the city of Dallas.

Functional Classification

The functional classification defines a street's role and context in the overall transportation system. In addition, it defines the desirable roadway width, right-of-way needs, access spacing, pedestrian and bicycle facilities. The city of Dallas has established a functional classification system for the roadways within the City limits. Figure 3-1 (study area) illustrates the existing classifications.

Arterials

Arterials are the highest class of street and serve larger volumes of regional traffic at greater speeds. Arterials serve as the major truck routes and emphasize regional mobility over access.

The City arterial system provides service to traffic entering and leaving the area and traffic to major activity centers in Dallas including the CBD and commercial services in the vicinity of the North Dallas Intersection. Those streets classified as arterials within the Dallas UGB are the two state-owned facilities (Dallas-Rickreall Highway and Kings Valley Highway). In addition, seven City-owned streets are classified as minor arterials:

- SW Levens Street, from the Dallas Rickreall Highway to SE Washington Street
- SE Miller Avenue, from SE Uglow Road to SE Fir Villa Road
- Oakdale Road, from SW Fairview Avenue to UGB

- Orchard Drive, from UGB to the Kings Valley Highway
- NE Polk Station Road, from Fern Avenue to the Dallas Rickreall Highway
- SE Washington Street, from Jefferson Street to SE Uglow Avenue
- SE Uglow Road, from SE Washington Street to UGB
- SE Fir Villa Road, from the Dallas-Rickreall Highway to SE Uglow Road

The Dallas Development Code (DDC) identifies right-of-way of between 80-100 feet of required right-of-way, 52 feet or more paved for arterial streets. Arterial standards also include 5′ sidewalks and 6′ bicycle lanes on each side of the roadway. Most of the arterial streets in Dallas are not fully built to City standards. The paved width of these two streets ranges from 32′ – 48.′ Sections of the arterials contain sidewalk and wide shoulders for bike lanes.

Collectors

Collector Streets are an intermediate class of street that typically serve as the most direct link between local roadways and the arterial system. Mobility functions as well as access are important for Collector Streets. The following Collector Streets are located in the City of Dallas:

- SE Academy Street, east of SE LaCreole Drive
- SE Barberry Avenue, east of SE LaCreole Drive
- SW Clay Street, west of SW Fairview Avenue
- Dallas Drive, north of Kings Valley Highway
- NW Denton Avenue, west of Orchard Drive
- NW Douglas Street, north of Dallas-Rickreall Highway
- Fairhaven Lane, west of Orchard Drive
- Fern Avenue, between Orchard Drive and Polk Station Road
- SE Godsey Road, between SE Miller Avenue and Monmouth Cut-Off Road
- SE Hankel Street, east of Main Street
- SE Hawthorne Avenue, south of Dallas-Rickreall Highway
- SW Hayter Street, south of SW Washington Street
- SW James Howe Road, north of W Ellendale Avenue
- NW Jasper Street, west of Orchard Road
- SE LaCreole Drive, between Dallas-Rickreall Highway and SE Miller Avenue
- Main Street, from SE Washington Street to SW Church Street

- SE Maple Street, from Main Street to SE Uglow Road
- SE Mill Street, west of SE Uglow Road
- Oak Villa Road, north of Dallas-Rickreall Highway
- Orchard View, south of Dallas-Rickreall Highway
- Orrs Corner Road, east of SE Fir Villa Road
- SW River Drive, south of W Ellendale Avenue
- Uglow Street, between SE Hankel Street and SE Walnut Avenue
- SW Wyatt Street, between W Ellendale Avenue and SW Marietta Lane

The DDC specifies standards for the City's Collector Street system, including 70′ right-of-way, 36′-40′ paved roadway, 5′ sidewalks on both sides of the roadway with 4′ parkrows, and 6′ bicycle lanes on both sides for areas identified in an adopted City plan. Most Collector Streets in the Dallas UGB are of the desired pavement width, with the exception of West Ellendale Avenue between Wyatt Street and River Drive and Monmouth Cutoff Road between Uglow Street and Godsey Road. Many Collectors have sidewalks on both sides of the street though there are several exceptions. Most Collectors do not have facilities for bicyclists.

Local Streets

Local Streets carry a lower volume of traffic than Collectors and Arterials, and provide direct access to neighborhoods and homes. Local Streets generally feed into Collector Streets. Access is the most important role of local streets.

The DDC specifies standards for the City's Local Street system. This includes a 60′ right-of-way for non-alley Local Streets and 50′ right-of-way for alley Local Streets (with pavement width of 36′ and 32′ respectively); 5′ sidewalks on both sides; 4′ parkrows for Local Streets in Mixed-Use Nodes, and 6′ bicycle lanes on both sides if the facility is part of an adopted plan. See Technical Memorandum 1 Plan and Policy Review for more information.

Local Streets were not analyzed in this TSP.

Roadway Geometry and Access

Roadway characteristics within the Dallas UGB were provided by the City and ODOT, and verified through a field visit. The roadways analyzed are predominantly two-lane roads with left-turn pockets at intersections. There are no medians within the UGB. The speed limits range between 20 miles per hour (MPH) and 50 miles per hour within the Dallas UGB, though most study roadways are posted at 25 MPH speed limits. Throughout the City, travel lanes are generally 12 feet wide, though some variation exists, especially in the downtown area where lane widths are as wide as 20 feet. Throughout the UGB paved shoulders are intermittent (where sidewalk does not exist) and vary in width.

Highway Access

Division 51 (OAR 734-051-0010 through 734-051-0560) specifies access management spacing standards for ODOT facilities. Spacing standards vary depending on the type and location of the highway facility and the speed of the facility. The relevant spacing standards for the Dallas Rickreall and Kings Valley Highways range from 175 feet to 700 feet.

The DDC does not address access points or spacing standards, though the Dallas Comprehensive Plan includes a general discussion of access management policies. The DDC may be amended to include access management standards based on the results of this TSP.

Much of the existing spacing on Oregon 223 is closer than Division 51 spacing standards. The built-out commercial nature of the area occurred prior to Division 51 legislation. There is an existing plan for improvement at the North Dallas Intersection that includes access control at and near the intersection.

Section 7 describes access spacing along the study area highways in greater detail.

Freight

Within Dallas, freight moves predominantly by truck or rail. There are no navigable waterways, scheduled airfreight service, or pipelines in Dallas. Specific freight generators in the City are predominantly manufacturing or timber companies. Most of these are located southeast of downtown. These include the Weyerhaeuser Lumber Mill on SE Lyle; the Tyco facility on the Monmouth Cutoff Road; the RV manufacturing facility, located near the intersection of SE Uglow and the Monmouth Cutoff Road; and the Dallas Planing Mill on SE Holman Road, south of the Monmouth Cutoff Road. Trucks from these facilities access the freeway system either via OR 223 through downtown Dallas, connecting with OR 22 eastbound toward Salem (and I-5), or via Clow Corner Road, accessing 99W to Eugene or Tigard (and I-5).

The operational analysis, described in detail over the following pages, shows a range of freight traffic as a percentage of overall traffic, from no freight traffic on Collector streets leading to the local street network, to 13 percent at the entrance to the Weyerhaeuser Lumber Mill. Figures 3-7a through 7d display freight volumes as a percentage of overall traffic volumes at each of the study intersections. Generally, nearby Automatic Traffic Recorder (ATR) sites can be referenced for overall volume of freight movement in the project vicinity, however neither ATR sites used for this project (Oak Knoll nor Monmouth) recorded vehicle classification data.

The City of Dallas has designated a freight route to channel truck freight movement through downtown. The following segments make up the city freight route (southerly direction):

- Levens Street, from W Ellendale Avenue to Washington Street
- Washington Street, from Levens Street
- Main Street , from Washington Street
- Uglow Road, from Washington Street to Monmouth Cutoff Road

Specific freight destinations within the City include the Wal-Mart and Safeway stores, and the automobile lots at or near the North Dallas Intersection. These locations showed a low volume of freight as an overall percentage of vehicle traffic (ranging between one and six percent), probably because these types of facilities receive shipments during the non-peak hours.

Traffic Operations

Manual turning movement counts were collected for 25 intersections of arterials and collectors within the Dallas UGB on typical weekdays in August and October 2004. All counts were collected during the P.M. peak period (4:00-6:00 P.M.), which is when traffic volumes are highest on area roadways. These counts were collected to evaluate the existing roadways and intersection operations within the City of Dallas.

Average Daily Traffic Volumes

The average daily traffic (ADT) for facilities within Dallas varies between 3,500 and 10,000 vehicles per day. The ADT on Kings Valley Highway at the northern and southern edges of the UGB is approximately 4,500 vehicles per day. In downtown Dallas, the ADT increases to approximately 10,000 vehicles per day. ADT for the east end of Dallas is close to 10,000 vehicles per day as well. At the western end of the UGB, (Ellendale Avenue) ADT is only about 3,500 vehicles per day. And finally, on Monmouth Cutoff Road, the southeast edge of the UGB, the ADT is approximately 5,500 vehicles per day.

Study Intersections and Raw Traffic Counts

Traffic data were collected for the following signalized and unsignalized intersections.

Signalized

- Washington Street and Levens Street
- Dallas-Rickreall Highway and Kings Valley Highway (North Dallas Intersection)
- Dallas-Rickreall Highway and LaCreole Drive
- Washington Street and Main Street
- Miller Avenue and Uglow Street

Unsignalized

- Kings Valley Highway and Bridlewood Drive
- Kings Valley Highway and Oakdale Avenue
- Kings Valley Highway and Walnut Avenue
- Kings Valley Highway and Orchard Drive
- Kings Valley Highway and Polk Station Road
- Dallas-Rickreall Highway and Fir Villa Road
- Dallas-Rickreall Highway and Oak Villa Road
- Dallas-Rickreall Highway and Polk Station Road
- Monmouth Cutoff Road and Uglow Street
- Monmouth Cutoff Road and Godsey Road
- W Ellendale Avenue and James Howe Road
- W Ellendale Avenue and River Drive
- W Ellendale Avenue and Levens Drive
- Washington Street and Jefferson Street
- Mill Street and Main Street
- Mill Street and Jefferson Street

- Main Street and Maple Street
- Miller Avenue and LaCreole Drive
- Miller Avenue and Godsey Road
- Miller Avenue and Fir Villa Road

These intersections were included in the analysis because they are considered primary intersections within the City of Dallas. Figures 3-7a through 7d display the results of the operational analysis.

Analysis of the Automated Traffic Recorder Sites

ODOT traffic analysis procedures require the 30th highest hour traffic volumes be used to calculate volume to capacity (V/C[3]) ratios for intersections and street segments. The 30th highest hour represents the highest volume of traffic that would be expected to occur on the roadway, ignoring extraordinary circumstances – literally the 30th highest recorded traffic volumes recorded. Data from two nearby Automated Traffic Recorder (ATR) sites[4] were used to determine seasonal factors and to calculate 30th highest hour traffic volumes from traffic counts collected in August, September and October, respectively.

Analysis Method

Operational analysis of existing conditions for the twenty-five study intersections, using 30th highest hour traffic volumes, was performed using Synchro analysis software. This software package is based on the Highway Capacity Manual, TRB Special Report 209.

State Highway Mobility Standards

State Highway Mobility Standards were developed for the 1999 OHP as a method to gauge reasonable and consistent standards for traffic flow along state highways. These mobility standards consider the classification (e.g., freeway, district) and location (rural, urban) of each state highway. Mobility standards are based on V/C ratios.

More than half of the intersections analyzed in the operational analysis are along OR 223 and thus governed by OHP standards. The 1999 OHP designates OR 223 as a District Highway. District Highways are typically highways of county-wide significance and provide a connection between small urbanized areas. The study area is inside the City's UGB and outside the boundaries of a Metropolitan Planning Organization (MPO). The segment of OR 223 through downtown Dallas (from Academy Street to Washington Street) is within a STA. A vast majority of the study intersections operate at a speed limit of less than 45 mph. Because of the varied operational characteristics of the different study intersections, three different OHP mobility standards apply to state facilities in Dallas. These are outlined in Table 3-4.

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[3] V/C ratios are defined as the number of vehicles passing through a roadway segment during the peak hour, divided by the capacity of that roadway segment

[4] http://www.odot.state.or.us/tdb/traffic_monitoring/01tvt/atr-01.htm

TABLE 3-4
OHP Mobility Standards Applicable to Operational Analysis

Number	Land Use	Speed Limit	Applicable V/C Ratio
1.	Within STA	N/A	0.95
2.	Outside STA, outside MPO	< 45mph	0.85
3.	Outside STA, outside MPO	≥ 45mph	0.80

State mobility standards only apply to state highways, however the City does not have adopted standards for intersection performance. For this evaluation, the state standard of a "District/Local Interest Road" with a speed < 45 mph is used – the applicable V/C ratio for this type of facility is 0.85.

Operational Analysis of Existing Conditions (30th Highest Hour)

Table 3-5 presents the OHP mobility standards and observed intersection V/C ratios for each of the study intersections under existing (2004) 30th highest hour traffic volumes. For signalized intersections, the overall intersection results are reported. For unsignalized intersections, the movement with the worst operating performance on both the major and minor approaches is reported. V/C ratios that are higher than the mobility standard are in bold type.

TABLE 3-5
Operational Analysis of Study Intersections – 30th Highest Hour (Year 2004)

Intersection	OHP Mobility Standard (Major/minor)		Observed Maximum V/C Ratio	
	Major	Minor	Major	Minor
Signalized				
Kings Valley Hwy and Levens Street	0.85		0.64	
Dallas-Rickreall Hwy and Kings Valley Hwy (North Dallas Intersection)	0.85		**0.98**	
Dallas-Rickreall Hwy and LaCreole Drive	0.80		0.77	
Washington Street and Main Street	0.95		0.66	
Miller Avenue and Uglow Street	0.85		0.52	
Unsignalized				
Kings Valley Hwy and Bridlewood Drive	0.80	0.85	0.25	0.16
Kings Valley Highway and Oakdale Avenue	0.85	0.85	0.01	0.18
Kings Valley Highway and Walnut Avenue	0.85	0.85	0.46	0.50
Kings Valley Highway and Orchard Drive	0.85	0.85	0.17	0.38

TABLE 3-5
Operational Analysis of Study Intersections – 30th Highest Hour (Year 2004)

Intersection	OHP Mobility Standard (Major/minor)		Observed Maximum V/C Ratio	
	Major	**Minor**	**Major**	**Minor**
Kings Valley Hwy and Polk Station Road	0.85	0.85	0.02	0.15
Dallas-Rickreall Highway and Fir Villa Road	0.80	0.85	0.34	0.62
Dallas-Rickreall Hwy and Oak Villa Road	0.80	0.85	0.39	0.07
Dallas-Rickreall Hwy and Polk Station Rd	0.85	0.85	0.46	0.74
Monmouth Cutoff Road and Uglow Street	0.85	0.85	0.21	0.30
Monmouth Cutoff Road and Godsey Road	0.80	0.85	0.02	0.25
W Ellendale Ave and James Howe Road	0.85	0.85	0.03	0.12
W Ellendale Avenue and River Drive	0.85	0.85	0.22	0.15
W Ellendale Avenue and Levens Street	0.85	0.85	0.14	**>2.0**
Washington Street and Jefferson Street	0.95	0.95	0.35	**1.30**
Mill Street and Main Street	0.95	0.95	0.28	0.41
Mill Street and Jefferson Street	0.95	0.95	0.13	0.36
Main Street and Maple Street	0.85	0.85	0.05	0.17
Miller Avenue and LaCreole Drive	0.85	0.85	0.19	0.40
Miller Avenue and Godsey Road	0.85	0.85	0.16	0.21
Miller Avenue and Fir Villa Road	0.80	0.85	0.11	0.26

SOURCE: Synchro Highway Capacity Manual (HCM) Unsignalized Report and Synchro HCM Signals Report.

NOTE: Numbers in **BOLD** indicate higher than acceptable mobility levels

Intersection V/C ratios higher than OHP mobility standards indicate areas of congestion and longer-than-acceptable vehicle delay. Intersection V/C ratios lower than OHP mobility standards indicate intersections operating at acceptable levels of mobility. As shown in Table 3-5, all but three of the study intersections currently operate lower than the OHP V/C thresholds. The three intersections with higher than acceptable V/C ratios are Dallas-Rickreall Highway and Kings Valley Highway (the North Dallas Intersection), West Ellendale Avenue and Levens Street, and Washington Street and Jefferson Street.

The highest V/C ratio experienced in the study area is the stop-controlled approach on Levens Street at West Ellendale Avenue. The approach from Levens Street has a V/C ratio of 3.46, as the Ellendale Avenue approach is stop-controlled with a high volume of turning traffic. The North Dallas Intersection operates poorly due to the split phase signal operations. The northbound approach of Washington Street and Jefferson Street operates poorly because it is stop-controlled, but this does not affect many cars as the vehicular volume at this approach is low.

It should be mentioned at Miller Avenue and Uglow Street intersection, the V/C ratio is currently equal to the V/C standard. This potential could lead to a future problem as traffic growth will further degrade operations.

Turn-Lane Queuing Analysis of Existing Conditions (30th Highest Hour)

The V/C ratio provides only one measure-of-effectiveness of the intersection operation. Vehicle queuing in the turn-lanes shows where there is deficient vehicle storage at intersections. Four intersections (a total of eight approaches) are identified where 95th percentile queue length exceeds available storage capacity. These are listed in Table 3-6. Four of the eight approaches where the vehicle queue exceeds the provided storage are at the North Dallas Intersection. Most of the approaches in Table 3-6 involve exclusive or shared left-turn movements, only one is an exclusive right turn lane approach.

TABLE 3-6
2004 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
Signalized				
Dallas-Rickreall Hwy & Kings Valley Hwy (North Dallas Intersection)	Eastbound	Left	90	120
	Westbound	Left/Hard Left	200	260
	Westbound	Left/Thru/Right	1940	2350
	Southbound	Left/Hard Left	90	120
Dallas-Rickreall Hwy & LaCreole Drive	Northbound	Left/Through	130	180
Unsignalized				
W Ellendale Avenue & Levens Street	Eastbound	Right	170	260
	Westbound	Left	110	180

Queue lengths were rounded up to the nearest ten.

Queue lengths can impact overall intersection corridor operations by delaying and restricting upstream vehicle movements. This is true for both signalized and unsignalized intersections. The turning lane groups for the signalized intersections listed in Table 3-6 have a separate signal phase. Long queues can result in spillback into the main roadway section, thereby blocking side-street private driveways and hindering through traffic from proceeding even if that movement has a green signal. Traffic turning left onto a roadway at an unsignalized intersection can also delay right-turning vehicles while they wait for a safe gap in traffic to turn into.

Two of the three intersections identified as having queue length deficiencies also reported V/C ratios at or higher than ODOT mobility standards. These intersections are Dallas-Rickreall Highway and Kings Valley Highway (the North Dallas Intersection), and West Ellendale Avenue and Levens Street.

Safety Analysis

Crash history statistics were provided by the ODOT Crash Analysis Unit for the years 1998-2002, which are the most recent five years available. These data were analyzed to identify crash patterns that could be a result of existing geometric or operational deficiencies along the two state highways (Kings Valley Highway and Dallas-Rickreall Highway) in Dallas.

Study Area-Level Analysis

Overview

For the 5-year period, a total of 175 crashes were reported along the two state highways within the study area, including 74 injury crashes and 101 property damage crashes. There were no traffic-related fatalities during the five-year period. Table 3-7 provides an overview of all traffic crashes reported over the 5-year period.

TABLE 3-7
Historical Crash Data 1998-2002 for OR 223 in City of Dallas

	Severity of Crash			Type of Crash				
Year	**Injury**	**Property Damage**	**Total Crashes**	**Angle**	**Head-On**	**Rear-End**	**Turning**	**Other**
1998	18	18	36	4	0	12	11	9
1999	13	11	24	1	1	5	15	2
2000	9	21	30	5	0	11	12	2
2001	12	26	38	3	0	13	19	3
2002	22	25	47	8	0	17	19	3
Total	**74**	**101**	**175**	**21**	**1**	**58**	**76**	**19**

The rate of traffic incidents along the two corridors ranged between 24 and 47 crashes per year. The most common type of crash was turning, which comprised 43 percent (76 crashes) of all crashes during the 5-year period. This was followed by rear-end crashes, which made up 33 percent (58 crashes) of crashes.

Road conditions and time of day are two elements often analyzed with crash statistics. The majority (77 percent, 135 crashes) of crashes occurred on dry surface. Most of the crashes (144 crashes, 83 percent) also occurred during the day. Commercial vehicles with four or more axles were involved in eight (roughly 5 percent) of the crashes and a schoolbus was involved in one crash.

Segment Crash Rates—Existing Conditions

Table II of the 2002 Oregon State Highway Crash Rate Report designates crash rates for highways by type. The Kings Valley Highway and Dallas-Rickreall Highway are considered secondary urban non-freeways within the City of Dallas.

Table 3-8 summarizes the year 2002 crash rate and the 5-year average crash rate (1998 to 2002) for those sections of OR 223 Kings Valley Highway and Dallas-Rickreall Highway within the study limits of Dallas, as described in the 2002 State Highway Crash Rate Tables published by the ODOT Crash Analysis and Reporting Unit.

TABLE 3-8
Crash Rates along State Highway Segments in Dallas

Roadway	Year 2002 Crash Rate[1]	*Year 2002 Statewide Average Crash Rate*[1]	5-year Average Crash Rate[1]	*5-year Statewide Average Crash Rate*[1]
Kings Valley Highway MP 2.13 – 4.56	3.71	*2.12*	2.73	*2.47*
Dallas-Rickreall Highway MP 0.00 – 0.60	4.69	*2.12*	3.32	*2.47*

Source: 2002 State Highway Crash Rate Table, Crash Analysis and Reporting Unit, ODOT.

[1] Crash Rate in units of million vehicles miles.

On urban sections of secondary nonfreeway segments throughout the state, the 5-year statewide average crash rate was 2.47 crashes per million vehicle miles (MVM) and the 2002 statewide average rate was 2.12 crashes per MVM. As shown in Table 3-8, both the year 2002 and the 5-year average crash rates for the Kings Valley Highway and the Dallas-Rickreall Highway are considerably higher than the state averages. There are a number of factors that could explain this high rate. OR 223 serves as Dallas's main street through two, one-way couplets along its downtown core. A large number of direct access points connect the highways with businesses and residents through downtown and along the corridor. The highway veers directly to the west at the south end of the downtown couplet, which could cause confusion to drivers unfamiliar with the area. The highway is referred to as Ellendale Avenue, Main Street, Jefferson Street, Washington Street, and Fairview Avenue while within the City. This could also increase confusion for drivers.

Dallas-Rickreall Highway Analysis

Overview

For the 5-year period, a total of 54 crashes were reported along the Dallas-Rickreall Highway within the study area, including 26 injury crashes and 28 property damage crashes. There were no traffic-related fatalities along these study corridors during the 5-year period. Table 3-9 provides an overview of all traffic crashes over the 5-year period.

TABLE 3-9
Historical Crash Data 1998-2002 for Dallas-Rickreall Highway within City of Dallas

	Severity of Crash			Type of Crash				
Year	**Injury**	**Property Damage**	**Total Crashes**	**Angle**	**Head-On**	**Rear-End**	**Turning**	**Other**
1998	9	3	12	0	0	6	5	1
1999	4	3	7	0	0	1	6	0
2000	3	5	8	0	0	4	4	0
2001	6	7	13	0	0	3	9	1
2002	4	10	14	0	0	4	9	1
Total	**26**	**28**	**54**	**0**	**0**	**18**	**33**	**3**

The rate of traffic incidents along the corridor ranged between 7 and 14 crashes per year. The most common type of crash was turning, which comprised roughly 61 percent (33 crashes) of all crashes over the 5-year period. This was followed by rear-end crashes, which comprised roughly 33 percent (18 crashes) of all crashes over the five-year period.

Intersection Analysis along Dallas-Rickreall Highway

Approximately one out of three crashes along the Dallas-Rickreall Highway inside the Dallas UGB between 1998 and 2002 occurred at intersections. Table 3-10 provides a summary of the crashes recorded by intersection location.

TABLE 3-10
Intersection Crash Data (1998-2002) for Dallas-Rickreall Highway within Dallas

	Severity of Crash				Type of Crash				
Intersection	**Injury**	**Property Damage Only**	**Total Crashes**	**Crash Rate**	**Angle**	**Head-On**	**Rear-End**	**Turning**	**Other**
Fir Villa Road	0	0	0	0	0	0	0	0	0
Oak Villa Road	0	0	0	0	0	0	0	0	0
La Creole Drive	3	5	8	0.55	0	0	2	4	2
Polk Station Road	1	2	3	0.25	0	0	0	3	0
Kings Valley Highway	3	3	6	0.27	1	0	4	1	0
Total	**6**	**9**	**17**	**N/A**	**1**	**0**	**6**	**8**	**2**

More than half of the 17 crashes reported over the 5-year period involved property damage only with no injury, and no angle or head-on collisions were recorded. The most common types of incidents were rear-end and turning crashes.

The intersection-specific crashes along the Dallas-Rickreall Highway are fairly homogenous. All four crashes at the intersection with Kings Valley Highway were rear-end crashes. The listed cause for three of the four crashes was that the second car was following too closely to the first car to stop on time. This intersection is the largest in Dallas and has five legs. It is likely that the rear-end crashes are caused by one or more vehicles being confused about how to proceed through the intersection. The City of Dallas is reconstructing this intersection to reduce congestion and improve safety. Part of this project is expected to include access management to include consolidation of individual access points to further improve traffic flow and safety.

All crashes at the highway's intersection with Polk Station Road were a result of turning movements, where the vehicle at fault did not yield proper right-of-way. This could be an indication of poor sight distance at this intersection.

Crashes at La Creole Drive were a mix of rear end, turning, or "other" collisions (in this case, both "other" collisions involved hitting a fixed object). This could be an indication of a geometric deficiency or lack of proper signage.

Of the 17 total crashes at these study intersections, most (15 crashes) took place during daylight hours. Five of the crashes occurred on wet pavement.

All intersection crash rates are reported in crashes per million entering vehicles (MEV). A crash rate higher than 1.0 would indicate a safety concern. All intersection crash rates along Dallas-Rickreall Highway were below 1.0, with the LaCreole Drive having the highest crash rate at 0.55. The crash rates do not indicate a safety concern for study intersections along the Dallas-Rickreall Highway.

King Valley Highway Analysis

Overview

For the 5-year period, a total of 121 crashes were reported along the two state highways within the study area, including 48 injury crashes and 73 property damage crashes. There were no traffic-related fatalities along these study corridors during the 5-year period. Table 3-11 provides an overview of all traffic crashes over the 5-year period.

TABLE 3-11
Historical Crash Data 1998-2002 for King Valley Highway within City of Dallas

	Severity of Crash			Type of Crash				
Year	**Injury**	**Property Damage**	**Total Crashes**	**Angle**	**Head-On**	**Rear-End**	**Turning**	**Other**
1998	9	15	24	4	0	6	6	8
1999	9	8	17	1	1	4	9	2
2000	6	16	22	5	0	7	8	2
2001	6	19	25	3	0	10	10	2
2002	18	15	33	8	0	13	10	2
Total	**48**	**73**	**121**	**21**	**1**	**40**	**43**	**16**

The rate of traffic incidents along the corridor ranged between 17 and 33 crashes per year. The most common type of crash was turning, which comprised roughly 36 percent (43 crashes) of all crashes over the 5-year period. This was followed by rear-end crashes, which comprised roughly 33 percent (40 crashes) of all crashes over the 5-year period.

Intersection Analysis along Kings Valley Highway

More than two out of every three crashes along the Kings Valley Highway inside the Dallas UGB between 1998 and 2002 occurred at intersections. Table 3-12 provides a summary of the crashes recorded by intersection location.

TABLE 3-12
Intersection Crash Data (1998-2002) for Kings Valley Highway* within Dallas

	Severity of Crash				Type of Crash				
Intersection	**Injury**	**Property Damage Only**	**Total Crashes**	**Crash rate**	**Angle**	**Head-On**	**Rear -End**	**Turning**	**Other**
Polk Station Road	1	0	1	0.20	1	0	0	0	0
Orchard Road	1	0	1	0.11	0	0	0	1	0
Dallas-Rickreall Highway	3	3	6	0.27	1	0	4	1	0
Walnut Avenue	4	3	7	0.50	0	0	4	3	0
Mill Street (at Main Street)	4	1	5	0.55	1	0	2	1	1
Mill Street (at Jefferson Street)	1	3	4	0.55	2	0	0	2	0
Main Street (at Washington Street)	4	5	9	0.63	0	0	4	4	1
Jefferson Street (at Washington Street)	0	5	5	0.38	4	0	0	1	0
Levens Street	4	6	10	0.79	2	0	4	4	0
Oakdale Avenue	2	1	3	0.42	1	0	0	2	0
Bridlewood Drive	0	0	0	0	0	0	0	0	0
Total	**25**	**27**	**52**	**N/A**	**13**	**0**	**18**	**19**	**2**

* Kings Valley Highway OR 223 is also referred to as Main Street, Jefferson Street, Washington Street, and Fairview Avenue in Dallas

Of the total 52 crashes that occurred over the 5-year period at intersections in the study area, 25 resulted in injury whereas 27 involved property damage alone. Turning crashes and rear-end crashes were the most common types of collision, comprising roughly 35 percent of crashes each. There were no head-on collisions reported during the study period.

The highest number of crashes were seen at the approaches to the Main/Jefferson couplet through downtown Dallas. Seven crashes occurred at the intersection of Kings Valley Highway and Walnut Avenue – three turning and four rear-end collisions. This intersection is directly north of Rickreall Creek and marks a transition point from the north end of Dallas and downtown Dallas. Nine crashes occurred at the southern point of the couplet, at the intersection of Main and Washington, as the highway moves west as Washington Street before heading south again as Fairview Avenue. In the other direction, five crashes occurred at the intersection of Washington and Jefferson, four of which were angle collisions and one was a turning collision. This intersection requires vehicles traveling north along OR 223 to turn left in front of oncoming traffic to proceed from Washington to Jefferson. Of the four angle collisions, two were marked as no fault incidents, and the other two involved not providing proper right-of-way.

Finally, the highest number of crashes at any one intersection in the study area occurred at Levens. Over the 5-year period, 10 crashes occurred at this intersection, including four rear-end, four turning, and one angle collision. Levens is the only through street in Dallas west of OR 223 that crosses Rickreall Creek.

Of the 52 total crashes at these study intersections, most (more than 80 percent) took place during daylight hours. Less than 15 crashes occurred on wet pavement.

All intersection crash rates along the Kings Valley Highway were below 1.0, though the Levens intersection was the highest reported at 0.79. Crash rates below 1.0 do not indicate a safety concern.

Safety Priority Index System

ODOT has developed a Safety Priority Index System (SPIS), generated annually and based on the most recently available three years of crash data, to identify hazardous locations along state highways. The highway locations within the highest 10 percent SPIS score are evaluated for potential safety improvements. The 2004 SPIS Report (for crash years 2001-2003) identified two locations within the City of Dallas in the highest 10 percent SPIS score. These were:

1. Jefferson Street, MP 3.07-3.16 – including the Jefferson/Academy and Jefferson/Oak intersections.
2. W Ellendale, MP 0.16-0.28 – including the W Ellendale/Uglow intersection.

None of these SPIS intersections are included as study intersections; therefore, crash rates from the crash histories are unavailable.

Summary of Identified Deficiencies

Pedestrian Facility Deficiencies

Though many of the arterials and collectors in Dallas have adequate existing pedestrian facilities, there are still several barriers pedestrians must overcome:

- Limited street connectivity and land use clustering force many pedestrians to walk along arterial and collector roadways to access destinations. Many of these roadways have sidewalks near the center of town, but are only 5' wide and curb tight. The lack of buffers (planter strip, bicycle lanes or on-street parking) can make walking uncomfortable and potentially dangerous next to high speed traffic.
- Crossing OR 223 – Dallas Rickreall Highway is challenging due to long distances between signalized intersections and marked crossings. This discourages pedestrians from walking to services along the roadway and may endanger those who chose to dart across the roadway to reach their desired destinations.
- Portions of the arterial and collector street systems lack ADA-compliant curb ramps and driveway cuts. This can make traveling by wheelchair or motorized mobility device challenging, if not impossible.
- Sidewalks in many parts of Dallas are in substandard condition due to deferred maintenance, particularly on SW Church and SW Fairview/OR 223 as they approach the city limits. Cracking and heaving are two of the most common maintenance problems. Additionally, overgrown vegetation obstructs the sidewalk in some places, ostensibly blocking the walkway and forcing pedestrians to walk in the road.
- Though sidewalks are generally excellent in the downtown core, sidewalks adjacent to diagonal and perpendicular parking spaces are often narrowed by vehicles that overhang the extruded parking curb.
- Streets and roads in perimeter areas lack basic pedestrian facilities such as shoulders.
- Connectivity through the community is hindered by Rickreall Creek, forcing pedestrians to walk along Main Street, SW Levens or SE LaCreole. Additionally, pedestrians are discouraged from walking to services as distances are often double or triple the length to go around the creek.
- The intersection of SW Levens Street and W Ellendale does not provide any pedestrian accommodation, despite its proximity to the elementary school, sports complex, and access to downtown. Sidewalks in this area are also in poor repair, lack curb ramps, and are blocked by overgrown vegetation. The intersection is also the junction of the truck route. These barriers make it difficult and intimidating for children and others to access the area.

Example of walkway overhang

Children walking in the roadway to the bicycle lane/shoulder on Miller Avenue.

Bicycle Facility Deficiencies

- OR 223, particularly the Dallas-Rickreall Highway, are high-volume, multi-lane facilities which have few, if any, bicycle facilities. Most of the bicycle facilities are located on the periphery of the city and do not provide adequate facilities to major pedestrian and bicycle destinations. Strip development, multiple driveways, wide roadways, and high speeds discourage bicycling on these roadways through town.
- The intersection of OR 223 – King's Valley Highway and Dallas-Rickreall Highway – W Ellendale Avenue, and Main Street is a heavily traveled, skewed intersection with difficult transitions for bicyclists. The intersection provides access to downtown and key commercial nodes, as well as access to residential areas west of SW Levens Street.
- Rickreall Creek is a natural barrier that splits the city in half. Main and Jefferson Streets, SE LaCreole Avenue, SE Fir Villa Road, and SW Levens Street are the only north/south roadways that connect across the waterway. Traffic is channeled on these roadways and, subsequently, they have the highest volume of car and heavy truck traffic. These roadways also serve bicyclists wishing to cross town and present difficult riding conditions, particularly on Main and Jefferson Streets where there are no designated bicycle facilities.
- Existing facilities need to be upgraded to provide adequate bikeway facilities in both directions of travel. For example, SE Miller Avenue has a generous marked bicycle lane on the south side of the roadway from just west of SE Godsey Road to SE Fir Villa Road, but no shoulder or bicycle lane on the north side. W Ellendale Avenue is similar. A 7-foot shoulder exists on the south side of the roadway from the city limits to SE Levens Street, but there is no shoulder on the north side of the road.

A 7' shoulder on the south side of W Ellendale Avenue west of SW Levens Street..

The wide shoulder on W Ellendale vanishes west of SW Levens Street.

- Dallas's local roadway system provides excellent east/west connectivity south of Rickreall Creek. However, the existing bicycle facilities do not adequately connect to one another, leaving brief but difficult gaps in the system. North of Rickreall Creek, many residential areas have an interrupted street grid that requires out-of-direction travel and use of major streets to reach nearby destinations.
- A number of local bicyclists were observed riding on the sidewalk and against traffic. This may be due to the lack of facilities on both sides of the roadway or lack of education about safe bicycling techniques.

Transit Deficiencies

- The number of Dallas residents working in Salem is significant. Over the next 20 years, fixed-route Cherriots bus service linking the two cities is expected to be warranted.
- Existing CARTS service has proven to be popular. A recent survey indicated that riders want more frequent weekday service (currently each route has only one trip during the AM and PM peak periods) and the creation of weekend service.
- The City of Dallas could work with OHAS, Cherriots, and Polk County to increase advertisement of transit service within the City, and inform residents of transit options.

Roadway Deficiencies

- The arterial streets in Dallas are not fully built to City standards. The paved width of these streets ranges from 32′ – 48′ as compared to a 52′ standard for paved width. Sections of the arterials contain sidewalks and wide shoulders for bike lanes, but this is not comprehensive. See pedestrian and bicycle deficiencies section above.
- West Ellendale Avenue between Wyatt Street and River Drive and Monmouth Cutoff Road between Uglow Street and Godsey Road are not built to City standards of 36′-40′ paved roadway width. Many Collectors have sidewalks on both sides of the street though there are several exceptions. Most Collectors do not have facilities for bicyclists. See pedestrian and bicycle deficiencies section above.

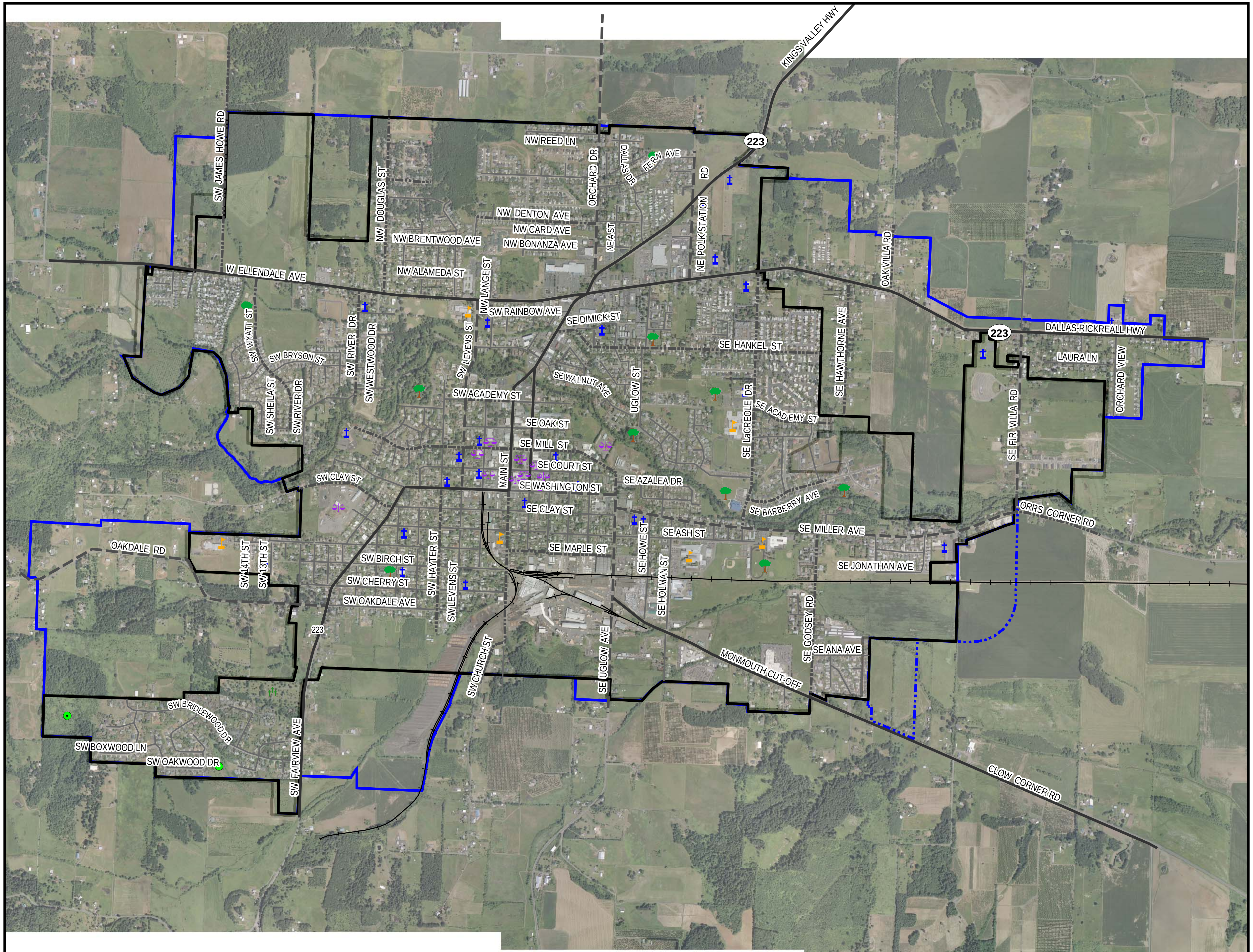
Traffic Operations Deficiencies

- Three of the study intersections currently operate at a higher than acceptable mobility standard. These are:
  - Dallas-Rickreall Highway and Kings Valley Highway (The North Dallas Intersection). This signalized Intersection operates poorly (V/C ratio of 0.98) due to the intersection signal operating with split phasing. ODOT is working with the City to widen and realign this intersection.
  - The stop-controlled intersection of West Levens Street at West Ellendale Avenue (Levens approach). This movement from Levens Street to West Ellendale had the highest V/C ratio experienced in the study area (3.46). This is due to a high volume of turning traffic on Levens Street.
  - The stop-controlled intersection of Washington Street and Jefferson Street. The northbound movement of this intersection experiences the highest V/C ratio of 1.30. This leg operates poorly because it is stop controlled and due to the high east and westbound approach volumes providing only a few gaps for the northbound traffic to turn into.
- Six intersections (a total of eight approaches) were identified where 95th percentile queue length exceeds available storage capacity. All the deficient approaches involved exclusive or shared left-turn movements. Queue lengths can impact overall intersection operations by spilling back into the main roadway section.

Safety Deficiencies

- Access management efforts along OR 223 would be expected to improve safety along the highway.
- Sight distance and stop control may be an issue for several intersections, including Dallas Rickreall Highway and La Creole Road, Ellendale and Levens, and Dallas Rickreall and Fir Villa Road. Results from the operational analysis indicate that traffic congestion is a likely contributor to safety problems at the W Ellendale / Levens intersection and the North Dallas Intersection.
- Improved signage/orientation may reduce confusion and improve safety at both ends of the Main/Jefferson couplet. This is especially recommended for the southern end of the couplet, at Washington.

Insert Figures 3-1 and 3-3 through 3-7



Dallas TSP

Existing Conditions

Figure 3-1 Dallas TSP Study Area and Existing Roadway Classifications

Dallas, OR

Legend

Existing Streets

- Arterial
- Minor Arterial
- Collector
- Local (or other)
- Rail Road
- Cemetery
- Church
- Government
- Open Space
- Park
- School
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

1 inch equals 1,750 feet

0 750 1,500 3,000 Feet

CH2MHILL

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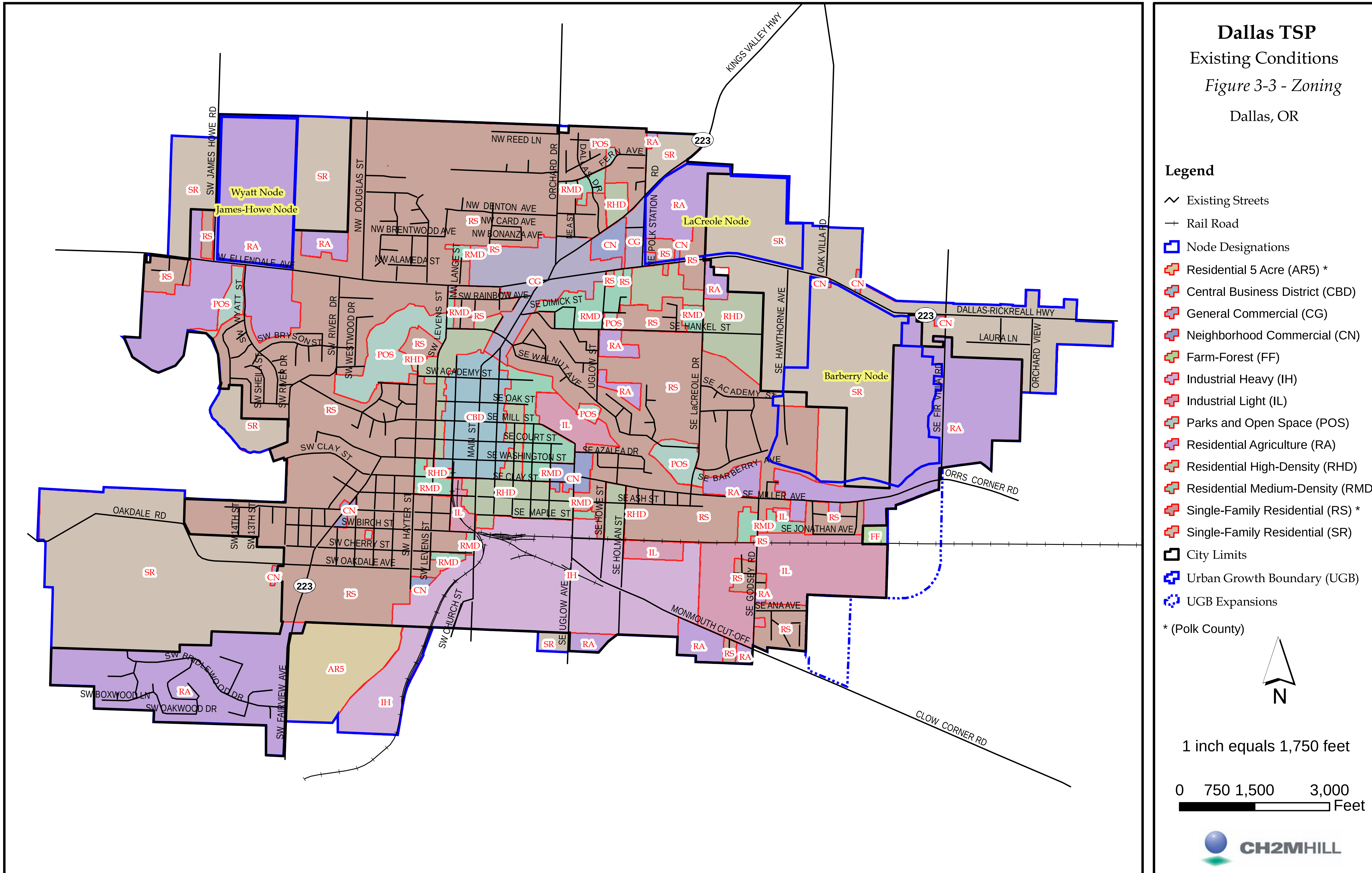

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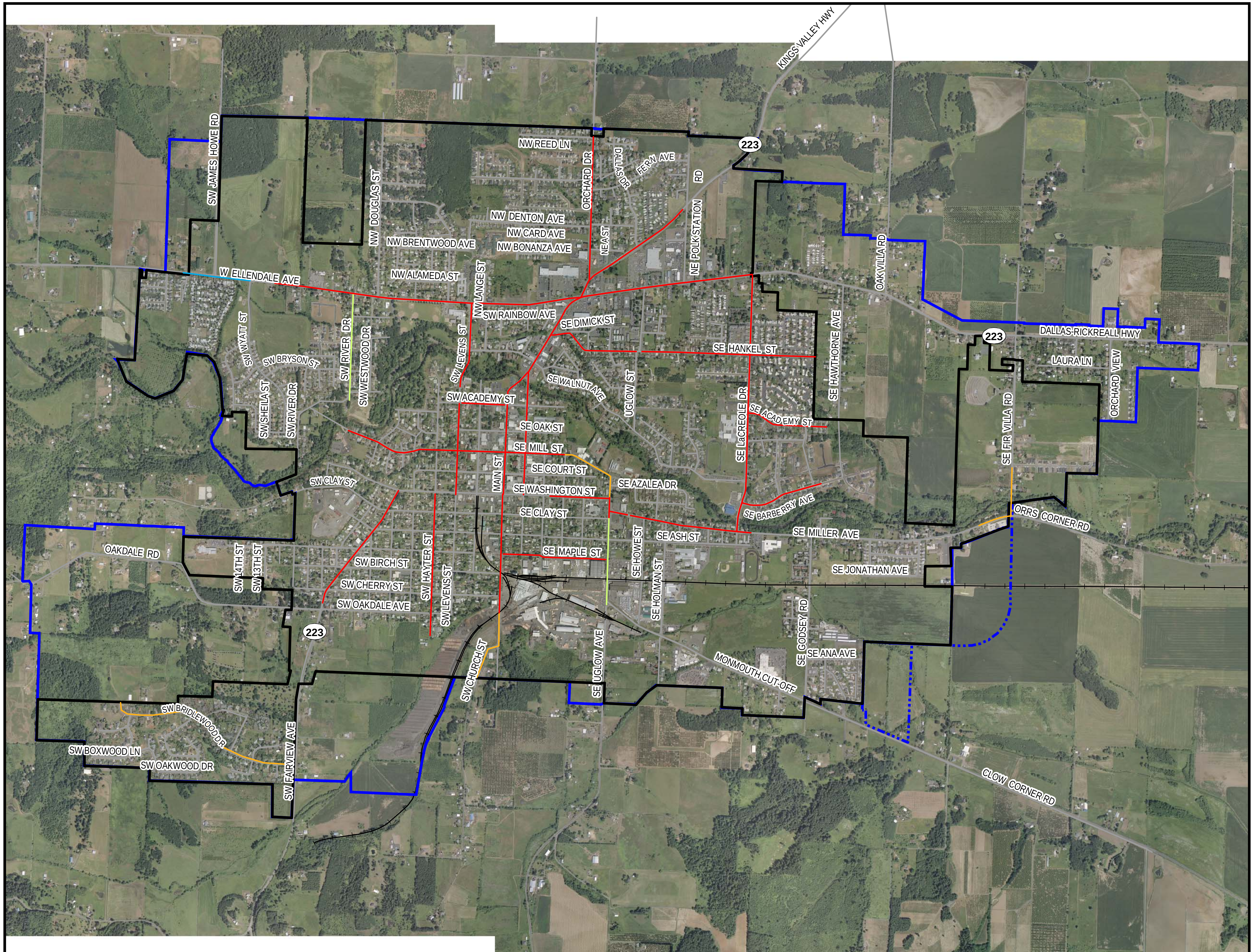
Dallas TSP

Existing Conditions

Figure 3-4 - Sidewalk System Collectors and Arterials

Dallas, OR



Legend

- Existing Streets
- Rail Road

Sidewalk Inventory

- Full Sidewalk (Both Sides)
- Full Sidewalk (One Side Only)
- Partial Sidewalk (Both Sides)
- Partial Sidewalk (One Side Only)

- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

1 inch equals 1,750 feet

0 750 1,500 3,000 Feet

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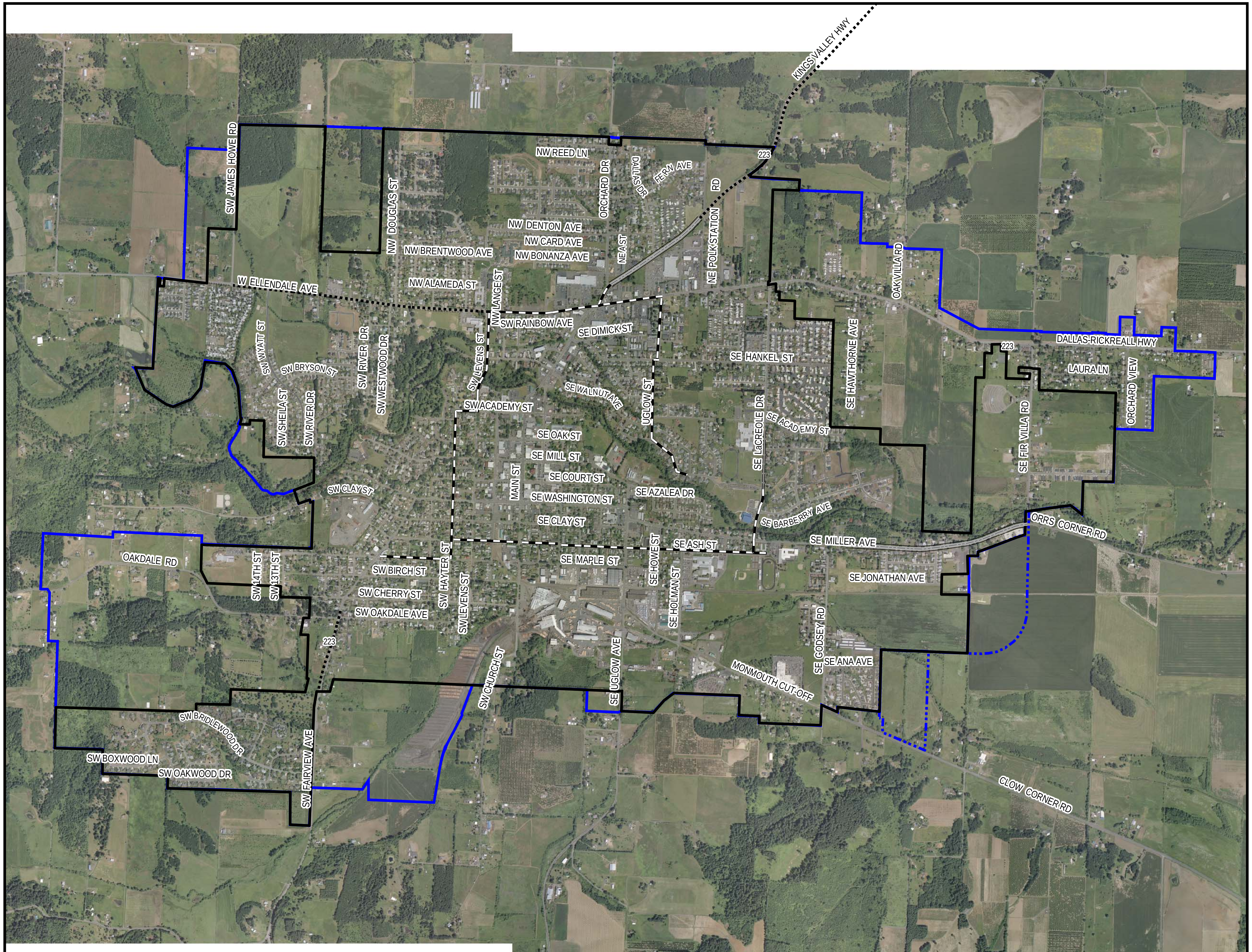

Dallas TSP

Existing Conditions

Figure 3-5 - Arterial/Collector Bike Network

Dallas, OR

Legend

Bike Network

- Bike Lanes
- Shared Use Path
- Shoulder Bikeway
- Signed Bike Route

- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

1 inch equals 1,750 feet

0 750 1,500 3,000 Feet

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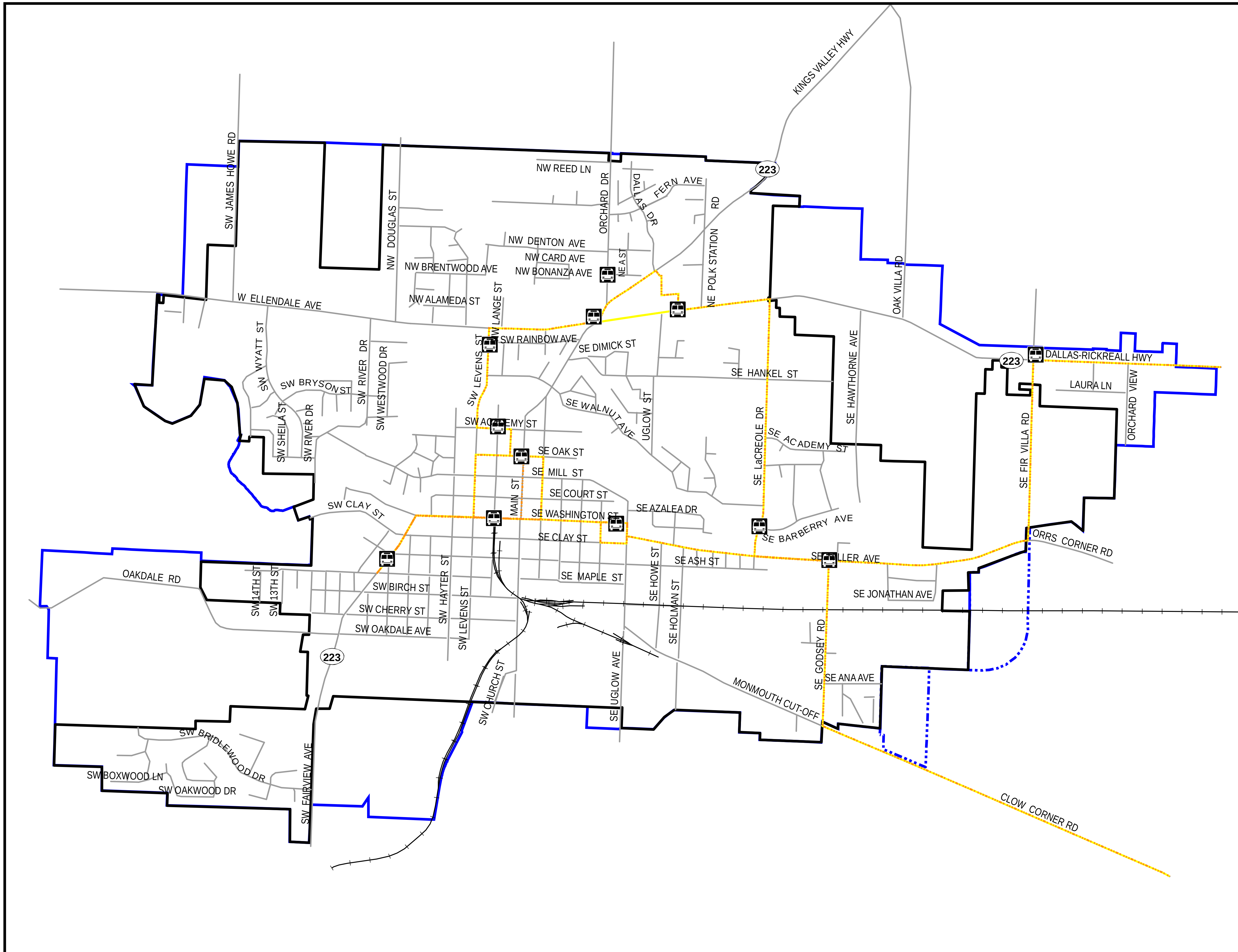

Dallas TSP

Existing Conditions

Figure 3-6 - Transit and Pedestrian Generators

Dallas, OR

Legend

- Transit Stops
- Existing Streets
- Rail Road
- Transit Route 2
- Transit Route 1
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

1 inch equals 1,750 feet

0 750 1,500 3,000 Feet

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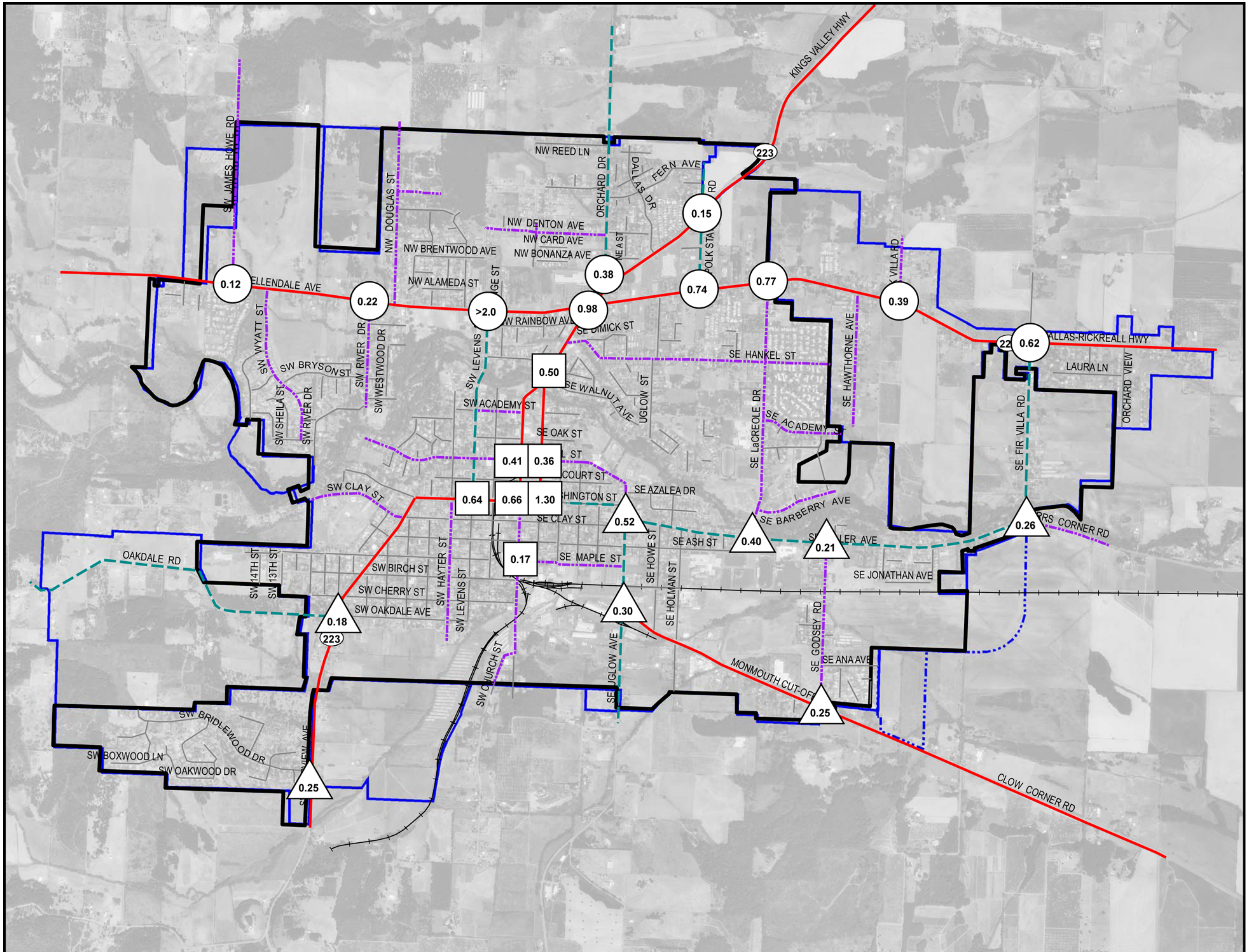

Dallas TSP

Figure 3-7a
Existing Conditions (2004)

30th Highest Hour V/C Ratios

Dallas, OR

Legend

- x.xx See Figure 3-7b for Intersection Data
- x.xx See Figure 3-7c for Intersection Data
- x.xx See Figure 3-7d for Intersection Data
- x.xx Intersection V/C Ratio
- Arterial
- Minor Arterial
- Collector Street
- Local or Other Street
- Rail Road
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

0 1,500 3,000 Feet

CH2MHILL

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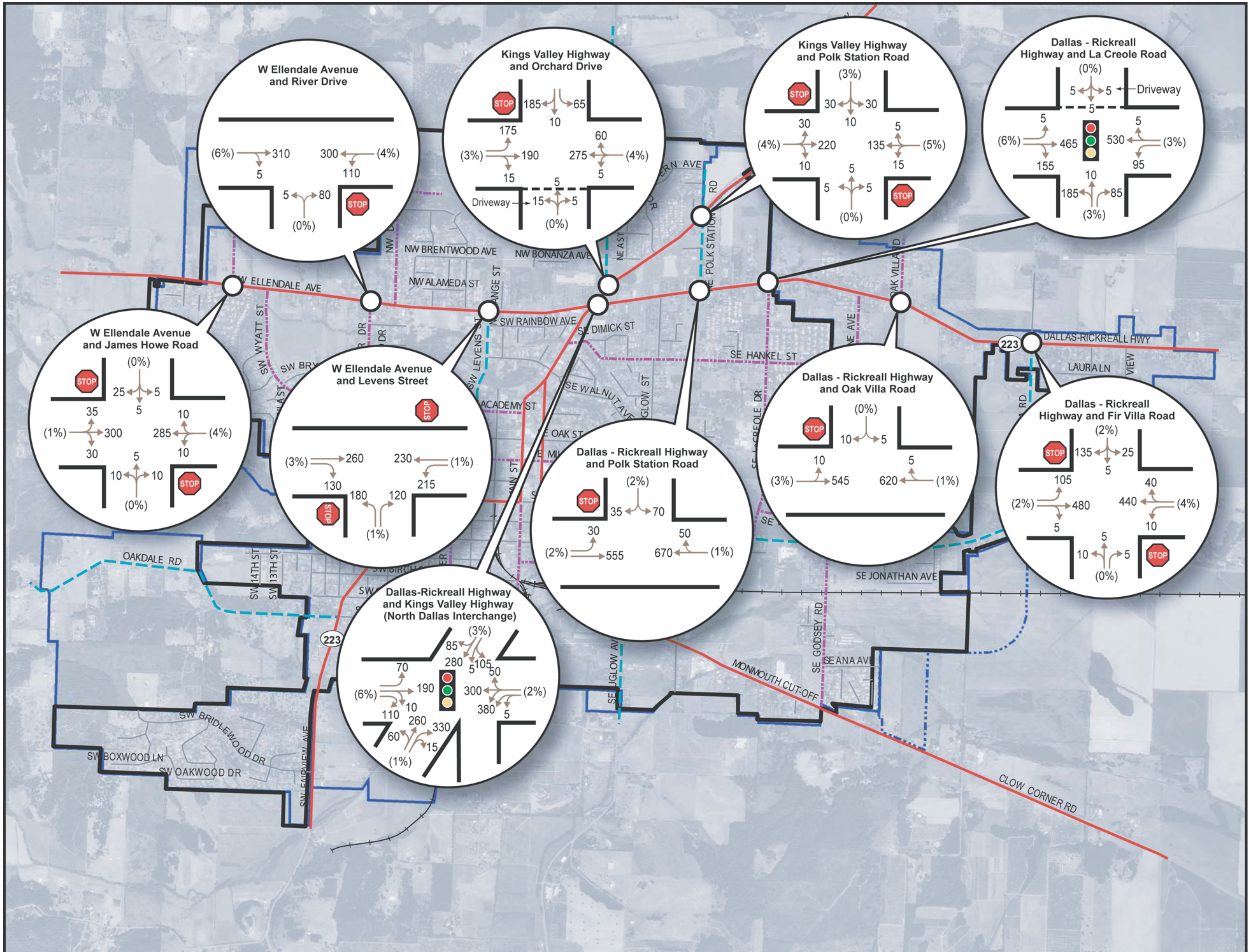

Dallas TSP

Figure 3-7b
Existing Conditions (2004)

30th Highest Hour Traffic Volumes, Lane Configurations, and Traffic Control

Dallas, OR

Legend

- Study Intersection
- Stop Sign
- Traffic Signal
- (N%) Freight
- Arterial
- Minor Arterial
- Collector Street
- Local or Other Street
- Railroad
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

0 1,500 3,000 Feet

CH2MHILL

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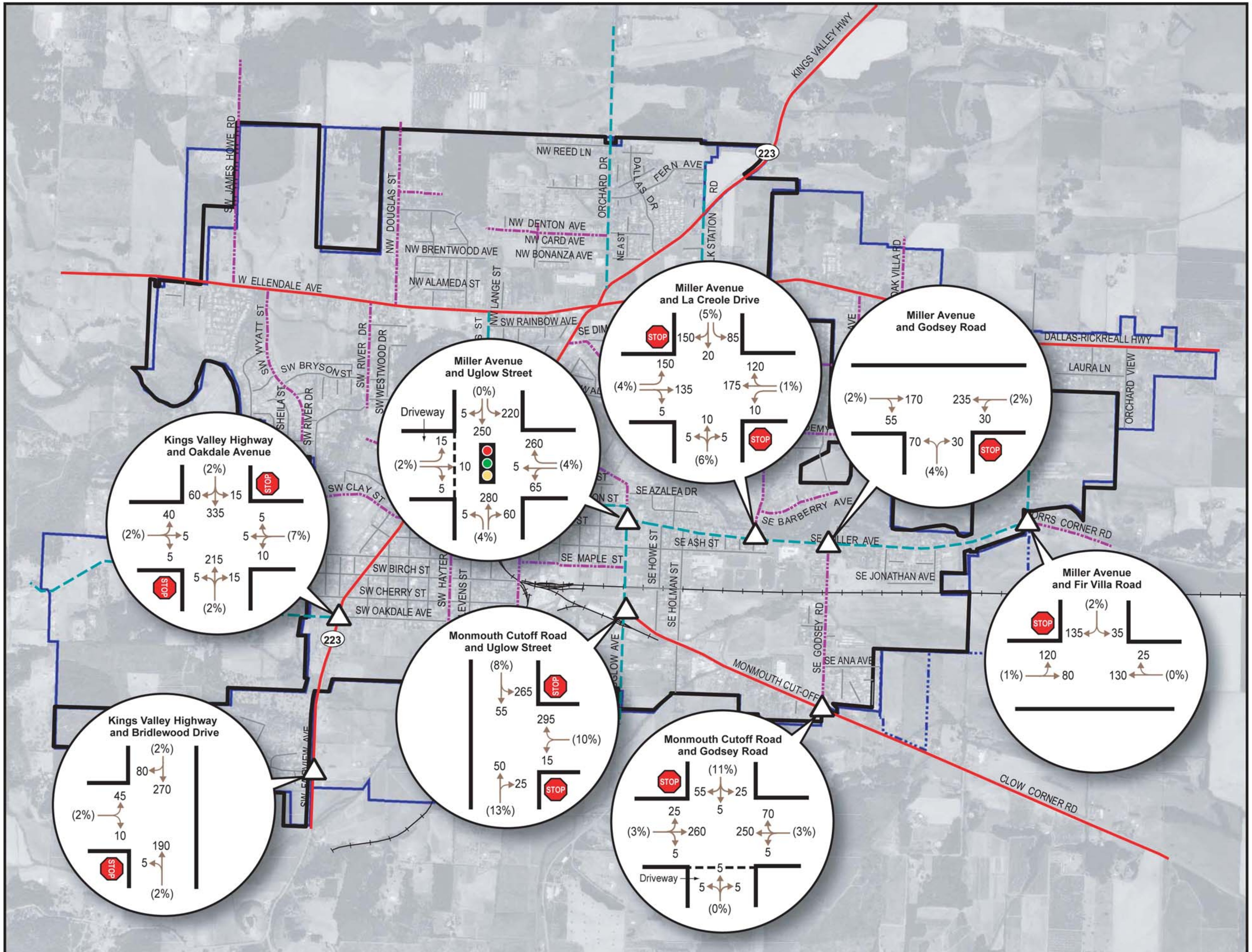

Dallas TSP

Figure 3-7c
Existing Conditions (2004)

30th Highest Hour Traffic Volumes, Lane Configurations, and Traffic Control

Dallas, OR

Legend

- Study Intersection
- Stop Sign
- Traffic Signal
- (N%) Freight
- Arterial
- Minor Arterial
- Collector Street
- Local or Other Street
- Railroad
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

0 1,500 3,000 Feet

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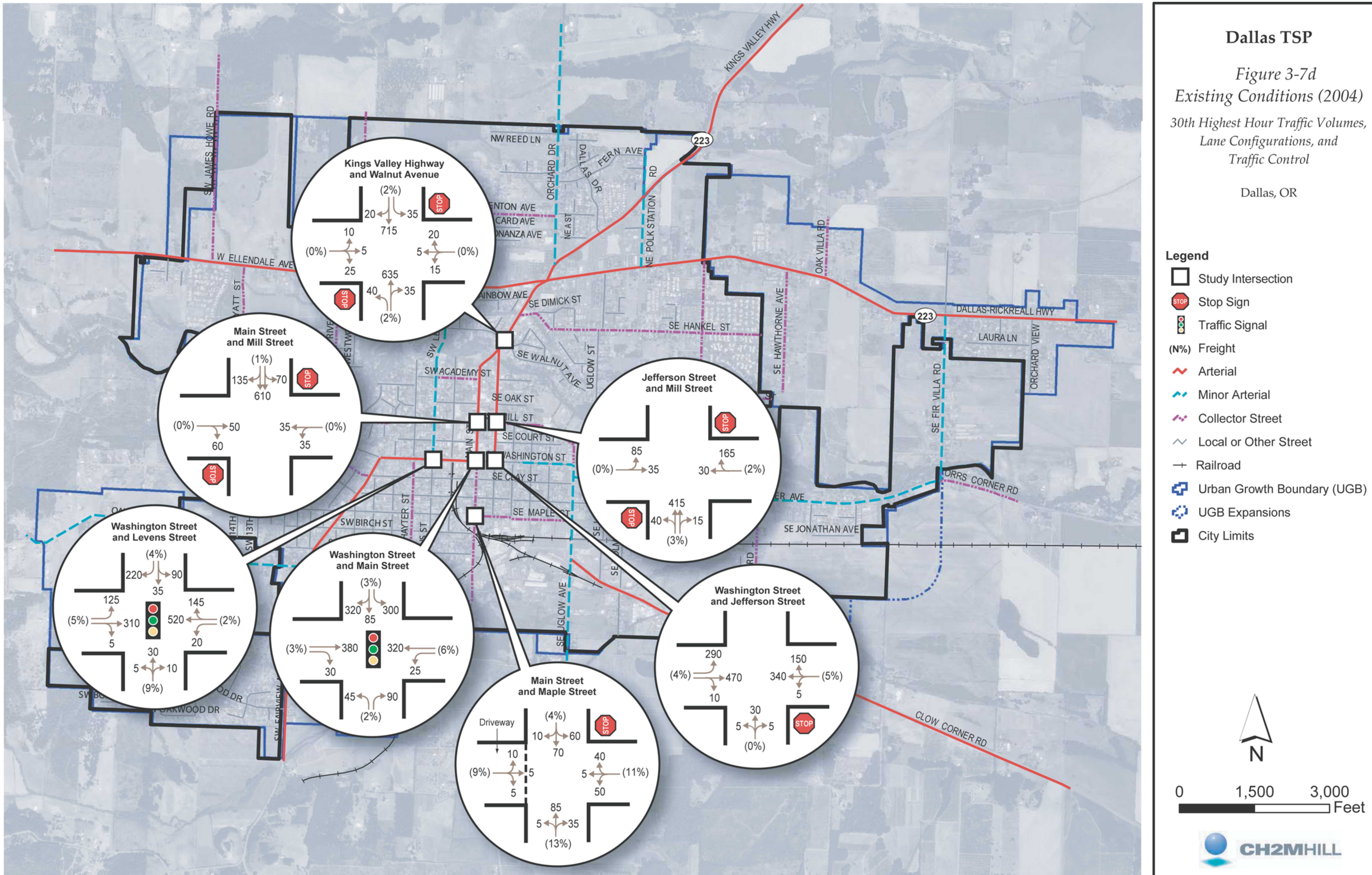

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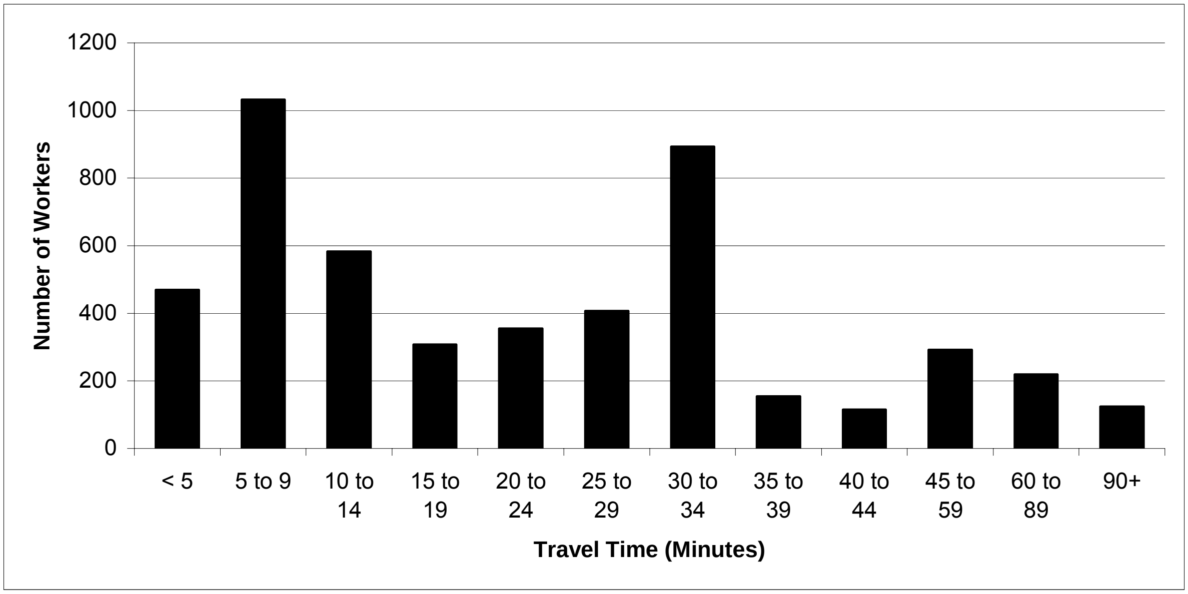
Figure 3-2: Travel Time to Work for Workers Aged 16 Years or Higher, City of Dallas, OR



Source: Census 2000 Summary File 3 (SF 3), Table P31 Travel Time to Work for Workers 16+ Years.

SECTION 4

Future Transportation Conditions, Deficiencies, and Needs

This section provides an analysis of future (2025) No Build transportation deficiencies for the Dallas TSP study area. This analysis consists of a future operational assessment of each of the 25 study intersections, based on a cumulative analysis method. The cumulative analysis method projects future traffic volumes based on expected land use development in the study area and historical traffic growth. Resulting deficiencies of the existing transportation system under No Build conditions in the study area are described and possible improvements are identified. In addition to future roadway needs, potential future bicycle, pedestrian, transit, and safety improvements are identified. The No Build analysis of future forecasted conditions in year 2025 assumes existing roadway geometry[5] and traffic control with future traffic volumes.

Population and Employment Growth

The 1998 Dallas Comprehensive Plan included an urban growth management program. The urban growth management program provides a framework for transition from rural to urban land use. The program forecasted household and job growth for a 20-year planning horizon and assessed the expected land supply needed to accommodate future residential and employment growth.

Table 4-1 provides an overview of expected growth of population, households, and jobs in the City between 2000 and 2020.

TABLE 4-1
Expected Population, Job, and Household Growth in Dallas 2000 to 2020

Year	Population	Jobs	Households
2000	13,117	3,231	5,247
2020	19,049	5,772	7,620
Expected Growth 2000-2020	**+5,932**	**+2,541**	**+2,373**

Source: City of Dallas Comprehensive Plan (1998) Volume II Background Documents, pg. 20, Table 2.2.

[5] Those roadway improvements included in the City of Dallas Capital Improvement Program and the state's Transportation Improvement Program are assumed to be built for future No Build conditions.

Cumulative Analysis

Because a transportation model for the study area is unavailable, a cumulative analysis method was used to project future traffic volumes in the study area. The cumulative analysis method considers traffic generated by two sources, expected development in the study area and historical traffic not associated with the development of land uses. The projected future volumes are distributed onto the study network and used to evaluate future deficiencies and identify potential transportation system improvements.

Expected Future Development

The Dallas Comprehensive Plan projects future demand by general land use category. This information was used as a basis for the cumulative analysis, and compared to the available land inventory (2004) as supplied by the City of Dallas. Available gross acreage was determined by summing all acreage identified as vacant, underutilized, or redevelopable by land use. Available developable acreage was determined by subtracting areas for roads and right-of-way (assumed to be 20 percent of gross acreage) and environmentally constrained areas – locations within the FEMA-defined floodway or along very steep (26 percent or higher) slopes.

Table 4-2 provides a summary of land demanded and available by land use category. In some instances, demand is higher than supply. For commercial and multi-family residential, this demand is accommodated through the three mixed-use nodes (Wyatt, LaCreole, and Barberry). Extra industrial demand is assumed to have been constructed between the release of the Comprehensive Plan and the updated Buildable Lands Inventory.

TABLE 4-2
Projected Land Use Demand and Supply

Land Use	Assumed Demand	Available Gross Acreage	Available Developable Acreage in City*	Acreage Assigned
Commercial	58	20**	14**	58**
Industrial	192	206	165	165
Multi-Family Residential	63	26**	16**	16**
Single-Family Residential	476	1,595*	1,220*	476
Public	33	Use SFR	Use SFR	33

* Gross acreage minus area for right-of-way, utilities, and interior roads, and minus environmental constraints.

** Land area inside the three mixed-use nodes are designated as single-family residential in the City's buildable lands inventory, but are expected to be rezoned (as per nodal master plan) to accommodate commercial and multi-family residential. The nodes are expected to accommodate the assumed demand for commercial and multi-family residential development.

The project management team analyzed the set of housing and employment needs in relation to the buildable lands inventory. Some general observations emerged:

- *Commercial Development* – Available parcels designated as commercial in the Comprehensive Plan are concentrated around the North Dallas intersection area, and at the northern portion of the Main/Jefferson couplet. The three mixed use nodes are also assumed to contain some level of neighborhood or general commercial development. Anticipated growth in commercial is expected to absorb most developable vacant and underutilized commercial-designated parcels. Developability of commercial parcels may be tempered by the Rickreall Creek floodway.
- *Industrial Development* – Expected growth in industrial will be focused in southern Dallas, clustered north and south of the Monmouth Cutoff Road. Demand is expected to absorb much available industrial land in the City. Development of some industrial parcels located inside the 100-year floodplain would require a floodplain permit, but with appropriate mitigation development on these parcels is possible.
- *Multi-Family Residential Development* – The supply of vacant and underutilized parcels designated as multi-family residential are limited, and mainly located near the North Dallas intersection and along Rickreall Creek near the Main/Jefferson Couplet. Development of some of these parcels was assumed to be constrained due to the Rickreall Creek floodway. The three mixed use nodes are expected to absorb the majority of demanded multi-family residential development.
- *Single-Family Residential Development* – The City's vacant lands inventory showed a greater supply of vacant or underutilized parcels designated as single-family residential (more than 1,500 acres) than demanded. Growth was therefore assumed to be focused in the three mixed-use nodes (Wyatt, LaCreole, and Barberry).

The cumulative analysis is organized into the five regions where land use is expected to impact the overall transportation network at a greater rate than historical trends. Land uses were related to land use categories listed in the Institute of Transportation Engineers (ITE) Trip Generation Manual (7^{th} Edition), and associated trips were identified associated with each general region.

Monmouth Cutoff Road (Industrial)

All available net industrial property was assumed for buildout by 2025. All of this area is located at the southern section of Dallas, in the vicinity of the Monmouth Cutoff Road. Zoning for vacant or underutilized parcels was designated either as light industrial (IL) or heavy industrial (IH). Table 4-3 summarizes estimated trip generation associated with industrial land development.

TABLE 4-3
Trips Generated by Projected Industrial Development, by Land Use Category

Zoning	Land Use Category	Developable Acres	Trip Generation Rate*	Distribution	PM Peak-Hour Trips Generated
Light Industrial	General Light Industrial (110)	28	7.26 trips/acre	22% entering, 78% exiting	205
Heavy Industrial	General Heavy Industrial (120)	137	2.16 trips/acre	Not available	295

* ITE Codes 110 and 120 were chosen, with average trip ends vs. acres on a weekday, peak hour of adjacent street traffic, one hour between 4:00 p.m. and 6:00 p.m.

North Dallas Intersection (Commercial and Multi-Family Residential)

All available net buildable land zoned commercial was assumed to be built out by 2025. This land is focused along the North Dallas intersection and at the northern edge of the Main Street/Jefferson Street couplet. Zoning for vacant, underutilized, or redevelopable parcels was General Commercial (CG) with a small amount (2 acres) zoned as Central Business District (CBD).

Because the zoning designations are simpler than the land use categories listed for retail and service commercial in the ITE Trip Generation Manual, a blended rate comprised of several possible commercial land use categories was used. Table 4-4 summarizes estimated trip generation associated with development in the North Dallas intersection vicinity.

TABLE 4-4
Trips Generated by Projected Commercial Development, by Land Use Category

Zoning	Land Use Category	Developable Acres	Dwelling Units / Gross S.F./Acres	Trip Generation Rate	Distribution	PM Peak-Hour Trips Generated*
General Commercial	Blended Rate (Commercial)	12	130,679 s.f.	7 trips/1,000 s.f.	Not Available	915
Central Business District	Blended Rate (Commercial)	2	21,780 s.f.	7 trips/1,000 s.f.	Not Available	150
Multi-Family Residential	Mid-Rise Apartment (223)	6	96 d.u.	0.39 trips/ d.u.	58% entering, 42% exiting	35

* A blended rate of 35 trips/acre was developed for commercial development. ITE Code 223 was used for multi-family residential, with average trip ends vs. dwelling units on a weekday, peak hour of adjacent street traffic, one hour between 4:00 p.m. and 6:00 p.m.

Barberry Node (Mixed Use)

The City of Dallas completed a master plan for the Barberry Mixed Use Node in 2000. This node is located south of the Dallas-Rickreall Highway, between Hawthorne Avenue and Fir Villa Avenue. The City estimates development of a mixture of commercial, residential, and open space. Table 4-5 summarizes the projected number of trips generated by each land use.

TABLE 4-5
Trips Generated by Projected Development in Barberry Mixed Use Node, by Land Use Category

Zoning	Land Use Category	Net Buildable Acres	Dwelling Units / Gross S.F./Acres	Trip Generation Rate	Distribution	PM Peak-Hour Trips Generated**
Neighborhood Commercial	Blended Rate (Neighborhood Commercial)	15	228,500 s.f.	3.7 trips/ 1,000 s.f.	Not Available	845
Multi Family Residential	Mid-Rise Apartment (223)	20	320 d.u.	0.39 trips/d.u.	58% entering, 42% exiting	125
Small Lot Residential	Residential Condominium/ Townhouse (230)	22	154 d.u.	0.52 trips/d.u.	67% entering, 33% exiting	80
Single Family Residential	Single-Family Detached Housing (210)	75	300 d.u.	1.01 trips/d.u.	63% entering, 37% exiting	305
Schools	Elementary School (520)	15	450 students	0.28 trips/student	45% entering, 55% exiting	125
Parks and Open Space	City Park (411)	20	20 acres	2 trips/acre	50% entering, 50% exiting	40

The same densities designated in the 2000 Master Plan for the LaCreole Node were assumed for the Barberry and Wyatt Nodes.

* A blended rate of 35 trips/acre was developed for commercial development. ITE Codes 223, 230, and 210 were used for residential, with average trip ends vs. dwelling units on a weekday, peak hour of adjacent street traffic, one hour between 4:00 p.m. and 6:00 p.m. ITE Code 520 was used for Elementary School, with average trips ends vs. students on a weekday, PM peak hour of generator. ITE Code 411 was used for City Park, with average trip ends vs. acres on a weekday.

** Rounded to nearest five trips.

The trips generated from expected land uses as outlined in the nodal master plan are relatively consistent with the *Transportation Impact Report and Congestion Management Plan* conducted by the City in 1999 for the Barberry and LaCreole Nodes. For the Barberry Node, differences were approximately 10 percent. These differences can be explained by acreages used (the 2003 master plan showed different acreages for certain land uses) and an updated version of the ITE Trip Generation Manual.

LaCreole Node (Mixed Use)

The LaCreole Node is located north of the Dallas-Rickreall Highway, east of Polk Station Road. Its location is east of the North Dallas intersection. The City has planned buildout of this area as a mixed use development comprised of a mix of residential densities with some commercial and open space. Table 4-6 lists projected trip generation by land use.

TABLE 4-6
Trips Generated by Projected Development in LaCreole Mixed Use Node, by Land Use Category

Zoning	Land Use Category	Net Buildable Acres	Dwelling Units / Gross S.F./Acres	Trip Generation Rate*	Distribution	PM Peak-Hour Trips Generated**
General Commercial	Blended Rate (Commercial)	21	228,500 s.f.	7 trips/1,000 s.f.	Not Available	1,600
Multi Family Residential	Mid-Rise Apartment (223)	19	304 d.u.	0.39 trips/d.u.	58% entering, 42% exiting	120
Small Lot Residential	Residential Condominium/ Townhouse (230)	20	140 d.u.	0.52 trips/d.u.	67% entering, 33% exiting	75
Single Family Residential	Single-Family Detached Housing (210)	16	64 d.u.	1.01 trips/d.u.	63% entering, 37% exiting	65
Mixed Use	Low-Rise Apartment (221)	14	70 d.u.	0.58 trips/d.u.	65% entering, 35% exiting	40
	Blended Rate (Neighborhood Commercial)		30,500 s.f.	3.7 trips/ 1,000 s.f.	Not Available	115
Parks and Open Space	City Park (411)	4	4 acres	2 trips/acre	50% entering, 50% exiting	10

* A blended rate of 35 trips/acre was developed for commercial development acre. ITE Codes 223, 230, and 210 were used for residential, with average trip ends vs. dwelling units on a weekday, peak hour of adjacent street traffic, one hour between 4:00 p.m. and 6:00 p.m. ITE Code 411 was used for City Park, with average trip ends vs. acres on a weekday.

** Rounded to nearest five trips.

The trips generated from expected land uses as outlined in the nodal master plan are relatively consistent with the *Transportation Impact Report and Congestion Management Plan* conducted by the City in 1999 for the Barberry and LaCreole Nodes. For the LaCreole Node, differences were approximately 4 percent. These differences can be explained by acreages used (the 2003 master plan showed different acreages for certain land uses) and an updated version of the ITE Trip Generation Manual.

Wyatt Node

The Wyatt Node is located north of W. Ellendale Road, directly east of James Howe Road. The City has planned buildout of this area as a mixed use development comprised of a mix of residential densities with some commercial and open space. Table 4-7 lists projected trip generation by land use.

TABLE 4-7
Trips Generated by Projected Development in Wyatt Mixed Use Node, by Land Use Category

Zoning	Land Use Category	Net Buildable Acres	Dwelling Units / Gross S.F./Acres	Trip Generation Rate*	Distribution	PM Peak-Hour Trips Generated**
Neighborhood Commercial	Blended Rate (Commercial)	5	54,450 s.f.	3.7 trips/ 1,000 s.f.	Not Available	200
Multi Family Residential	Mid-Rise Apartment (223)	15	240	0.39 trips/d.u.	58% entering, 42% exiting	95
Single Family Residential	Single-Family Detached Housing (210)	74	296	1.01 trips/d.u.	63% entering, 37% exiting	300
Parks and Open Space	City Park (411)	6	6 acres	2 trips/acre	50% entering, 50% exiting	10

The same densities designated in the 2000 Master Plan for the LaCreole Node were assumed for the Barberry and Wyatt Nodes.

* A blended rate of 35 trips/acre was developed for commercial development. ITE Codes 223 and 210 were used for residential; with average trip ends vs. dwelling units on a weekday, peak hour of adjacent street traffic, one hour between 4:00 p.m. and 6:00 p.m. ITE Code 411 was used for City Park, with average trip ends vs. acres on a weekday.

** Rounded to nearest five trips.

Trip Distribution

Trips were assigned to the transportation network using a series of distribution assumptions. The directions of ultimate destinations generally depend on the location of the growth area, but some general assumptions are listed as follows:

- *Points North:* OR 22, Oregon Coast, Spirit Mountain Casino
- *Points SW:* Falls City, Philomath
- *Points SE:* Monmouth, Independence
- *Points East:* Salem, I-5
- *Points West:* Ellendale

Specific destinations within Dallas include downtown and the commercial area around the North Dallas intersection. For some growth areas, a certain percentage of traffic (typically 5 percent) was assumed to use the local road network and not impact any of the study intersections. Furthermore, a percentage of traffic (typically 5-10 percent) was assumed to stay internal to the growth area. A summary of trip distribution by growth area is provided below.

Monmouth Cut-Off

Access points for the Monmouth Cut-Off industrial area on the No-Build network include Monmouth Cut-Off Road, Godsey Road, and Uglow Street. Miller Avenue is considered a secondary access, used as a path for vehicles but largely developed and therefore not generating large volumes of new trips. Table 4-8 provides a summary of traffic volumes and distribution assumptions used for industrial development served by Monmouth Cutoff.

TABLE 4-8
Traffic Volumes and Direction for Monmouth Cutoff

Direction	**Projected 2025 PM Peak Hour Traffic Volume**
Traffic In	102
Traffic Out	390
Total Traffic	502
Direction	**Distribution**
To North Dallas intersection and points north	15%
To Dallas-Rickreall and points east	35%
To Monmouth Cut-Off Road and points SE	10%
To Fairview Road and points SW	10%
To W Ellendale and points west	5%
To Downtown	15%
Internal to Monmouth Cutoff Growth Area	5%
Assumed Use of Local Roads	5%
TOTAL	**100%**

North Dallas

Possible access points for the North Dallas Node on the No-Build network include Kings Valley Highway, the Dallas-Rickreall Highway, and W Ellendale Road. Table 4-9 provides an overview of expected traffic volumes and distribution associated with the North Dallas node.

TABLE 4-9
Traffic Volumes and Direction for North Dallas Intersection

Direction	**Projected 2025 PM Peak Hour Traffic Volume**
Traffic In	553
Traffic Out	548
Total Traffic	1101
Direction	**Distribution**
To Downtown (points south)	45%
To W Ellendale (points west)	10%
To Dallas-Rickreall Highway (points east)	25%

TABLE 4-9
Traffic Volumes and Direction for North Dallas Intersection

Direction	Projected 2025 PM Peak Hour Traffic Volume
Traffic In	553
Traffic Out	548
To Kings Valley Highway (points north)	10%
Internal to North Dallas intersection	5%
TOTAL	**100%**

Barberry Node

Possible access points for the Barberry Node on the No-Build network include Fir Villa Road, Miller Avenue, Hawthorne Avenue, and Barberry Avenue (east to LaCreole Drive). The assumed distribution patterns are presented in Table 4-10.

TABLE 4-10
Traffic Volumes and Direction for Barberry Node

Direction	Projected 2025 PM Peak Hour Traffic Volume
Traffic In	818
Traffic Out	716
Total Traffic	1534
Direction	**Distribution**
To North Dallas intersection	20%
To Downtown	15%
To Dallas-Rickreall (points east)	20%
To Kings Valley Highway (points north)	5%
To W Ellendale (points west)	5%
To Monmouth-Independence (points SE)	10%
To Fairview Avenue (points SW)	10%
Internal to Barberry Node	10%
Assumed use of local roads	5%
TOTAL	**100%**

LaCreole Node

Possible access points for the LaCreole Node on the No-Build network include Polk Station Road to the Kings Valley Highway or the Dallas-Rickreall Highway, LaCreole Drive, and

Hawthorne Avenue. Expected traffic volumes associated with the LaCreole node and their expected distribution is shown in Table 4-11.

TABLE 4-11
Traffic Volumes and Direction for LaCreole Node

Direction	Projected 2025 PM Peak Hour Traffic Volume
Traffic In	1050
Traffic Out	976
Total Traffic	2026
Direction	**Distribution**
To Dallas-Rickreall Highway (points east)	30%
To Kings Valley Highway (points north)	20%
To North Dallas intersection and points west	15%
To LaCreole Drive (points south)	10%
To Downtown	10%
Internal to LaCreole Node	10%
Assumed use of local roads	5%
TOTAL	**100%**

Wyatt Node

Possible access points for the Wyatt Node on the No-Build network include James Howe Road, Wyatt Street, and W Ellendale Avenue. See Table 4-12.

TABLE 4-12
Traffic Volumes and Direction for Wyatt Node

Direction	Projected 2025 PM Peak Hour Traffic Volume
Traffic In	349
Traffic Out	256
Total Traffic	605
Direction	**Distribution**
To Downtown (points south)	20%
South on Wyatt Street	10%
To W Ellendale (points west)	10%
To North Dallas intersection	20%
To Dallas-Rickreall Highway (points east)	15%
To James Howe Road (points north)	10%

TABLE 4-12
Traffic Volumes and Direction for Wyatt Node

Direction	Projected 2025 PM Peak Hour Traffic Volume
Traffic In	349
Traffic Out	256
Internal to Wyatt Node	10%
Assumed use of local roads	5%
TOTAL	**100%**

Historical Growth Rates

Growth in traffic traveling through outside the study area was also expected. These trips are categorized as through trips. Through trips are defined as those vehicles that travel through the study area network without stopping anywhere in the City.

Future through trips were determined by assigning a historical growth factor to existing through trips. The existing through trips were established by analyzing the 2004 turning movement distribution at each intersection approach, with exceptions described in Table 4-13. As shown in Table 4-13, through trips were calculated from assessing the traffic volumes at each of the study network's starting point (the nearest intersection to the study area boundary for each major travel direction) to each end point. A growth rate multiplication factor was applied to the calculated existing through trips at each intersection. This growth factor alone was added on top of the existing traffic volumes and the development generated trips, to avoid double counting trips already added from existing Dallas land use development.

TABLE 4-13
External-External Trip Table (Based on 2004 30th Highest Hour Design Traffic Volumes)

	TO	North (Kings Valley Highway)	East (Dallas-Rickreall Highway)	SE (Monmouth Cut-off Road)	SW (Fairview Avenue)	West (W Ellendale Avenue)
FROM	North (Kings Valley Highway)	N/A	0	10	15	10
	East (Dallas-Rickreall Highway)	0	N/A	0	30	55
	SE (Monmouth Cut-off Road)	15	0	N/A	15	15
	SW (Fairview Avenue)	10	15	30	N/A	25
	West (W Ellendale Avenue)	20	60	15	45	N/A

Notes and Assumptions:

1. Trips traveling from West end of Ellendale Avenue to South end of Kings Valley Highway would use Levens Street.
2. No trips would be made from North end of Kings Valley Highway to East end of Dallas-Rickreall Highway

TABLE 4-13
External-External Trip Table (Based on 2004 30th Highest Hour Design Traffic Volumes)

and vice versa.

3. No trips would be made from East end of Dallas-Rickreall Highway to SE end of Monmouth Cut-off Road and vice versa.

Operational Analysis of Future 2025 No Build Condition

An operational analysis was conducted for the forecasted year 2025 No-Build condition with Synchro, version 6. Results from the Synchro HCM Signalized and Unsignalized Reports are reported in this memorandum.

For the No Build condition, the OHP mobility standards apply on State Highways. The OHP mobility standards were also used for comparing study intersections not on State highways. An explanation of those criteria applied is provided below. Because there are no known programmed improvements at 23 of the 25 intersections in the study area, the No-Build condition assumes the current traffic control and lane channelization at those 23 intersections. One of the intersections that has programmed improvements is Kings Valley Highway and Walnut Avenue. It is stated in the *City of Dallas, Public Works Proposed Street Projects 2004-2005* that a signal will be installed at this location in April 2005. The other intersection reflecting future improvements in the No-Build condition is the North Dallas intersection. This intersection is undergoing a major change in channelization that is expected to be completed by the end of 2005.

More than half of the intersections analyzed in the operational analysis are along OR 223. Because of the varied operational characteristics of the different study intersections, three different OHP mobility standards apply to state facilities in Dallas. These criteria are outlined in Table 4-14.

TABLE 4-14
OHP Mobility Standards Applicable to OR 223 Intersections within Dallas UGB

Number	Location	Speed Limit	Applicable V/C Ratio
1.	Within STA	N/A	0.95
2.	Outside STA, outside MPO	< 45mph	0.85
3.	Outside STA, outside MPO	≥ 45mph	0.80

State mobility standards only apply to state highways; however the City does not have adopted standards for intersection performance. For this evaluation, the state standard of a "District/Local Interest Road" with a speed < 45 mph is used – the applicable V/C ratio for this type of facility is 0.85.

Future No Build Intersection Operation Results

Table 4-15 shows a comparison of the V/C ratio standards and the predicted future 2025 No-Build V/C ratios as calculated under No-Build conditions. Table 4-15 reports the overall intersection results for signalized intersections, but reports results for the movement with the worst operating performance on both the major and minor approaches at the unsignalized intersections.

TABLE 4-15
Operational Analysis of Study Intersections – No-Build (2025) 30th Highest Hour

Intersection	OHP Mobility Standard		Projected V/C Ratio	
	Major	Minor	Major	Minor
Signalized				
Kings Valley Hwy and Levens Street	0.85		**0.87**	
Dallas-Rickreall Hwy and Kings Valley Hwy (North Dallas intersection)	0.85		**1.43**	
Dallas-Rickreall Hwy and LaCreole Drive	0.80		**1.38**	
Washington Street and Main Street	0.95		0.76	
Miller Avenue and Uglow Street	0.85		0.66	
Kings Valley Highway and Walnut Avenue	0.85		0.62	
Unsignalized				
Kings Valley Hwy and Bridlewood Drive	0.80	0.85	0.34	0.21
Kings Valley Highway and Oakdale Avenue	0.85	0.85	0.03	0.34
Kings Valley Highway and Orchard Drive	0.85	0.85	0.59	**>2.0**
Kings Valley Hwy and Polk Station Road	0.85	0.85	0.22	0.77
Dallas-Rickreall Highway and Fir Villa Road	0.80	0.85	0.79	**>2.0**
Dallas-Rickreall Hwy and Oak Villa Road	0.80	0.85	**0.90**	0.40
Dallas-Rickreall Hwy and Polk Station Rd	0.85	0.85	0.79	**>2.0**
Monmouth Cutoff and Uglow Street	0.85	0.85	0.23	0.41
Monmouth Cutoff and Godsey Road	0.80	0.85	0.10	**0.87**
W Ellendale Ave and James Howe Road	0.85	0.85	0.06	**1.10**
W Ellendale Avenue and River Drive	0.85	0.85	0.41	0.24
W Ellendale Avenue and Levens Street	0.85	0.85	0.19	**>2.0**
Washington Street and Jefferson Street	0.95	0.95	0.51	**>2.0**
Mill Street and Main Street	0.95	0.95	0.43	**>2.0**
Mill Street and Jefferson Street	0.95	0.95	0.19	**1.96**
Main Street and Maple Street	0.85	0.85	0.04	0.15

TABLE 4-15
Operational Analysis of Study Intersections – No-Build (2025) 30th Highest Hour

Intersection	OHP Mobility Standard		Projected V/C Ratio	
	Major	Minor	Major	Minor
Miller Avenue and LaCreole Drive	0.85	0.85	0.32	**1.81**
Miller Avenue and Godsey Road	0.85	0.85	0.24	**1.10**
Miller Avenue and Fir Villa Road	0.80	0.85	0.29	0.55

NOTE: Numbers in **BOLD** indicate higher than acceptable mobility levels.

Intersection V/C ratios higher than OHP mobility standards indicate areas of congestion and longer-than-acceptable vehicle delay. Intersection V/C ratios lower than OHP mobility standards indicate intersections operating at acceptable levels of mobility. As shown in Table 4-15, 10 of the study intersections currently operate lower than the OHP V/C thresholds. Fifteen of the study intersections operate with higher than acceptable V/C ratios. Out of the 15 failing intersections, there are six with V/C ratios greater than two. Potential roadway improvement alternatives to mitigate deficiencies will be evaluated in the next phase of this project.

Queuing Analysis of Future Conditions (30th Highest Hour)

The V/C ratio provides only one measure-of-effectiveness of the intersection operation. Vehicle queuing overflow in the turn-lane shows where there is deficient vehicle storage at intersections. Vehicle queuing overflow in the through lane shows where there is deficient capacity between one intersection and the next. Table 4-16 shows each lane in the study area that has a queue length that exceeds the storage. Table 4-16 also shows the projected V/C ratio for each movement and the analysis method used to calculate the queue length. Eight intersections (a total of 22 approach lanes) are identified where 95th percentile queue length exceeds available storage capacity. Fourteen of the approach lanes in Table 4-16 are either exclusive left or right turn lanes. Five of the approach lanes are combined left/through or right/through lanes. Three of the approach lanes are exclusive through lanes.

TABLE 4-16
2025 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
Washington Street & Levens Street				
	Eastbound	Left	150	180
	Westbound	Thru/Right	300	570
Dallas-Rickreall Hwy & Kings Valley Hwy				
	Eastbound	Left	200	280
	Westbound	Left	335	370
	Westbound	Left	335	420
	Northbound	Left	215	310
	Northbound	Right	300	370
	Southbound	Left	100	280

TABLE 4-16
2025 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
Dallas-Rickreall Hwy & LaCreole Drive				
	Northbound	Left/Thru	130	160
Washington Street & Main Street				
	Eastbound	Thru	450	540
	Eastbound	Thru	290	420
	Southbound	Left	310	480
	Southbound	Thru/Right	310	330
Miller Avenue & Uglow Street				
	Northbound	Thru/Right	450	510
	Southbound	Left	120	420
Kings Valley Hwy & Orchard Drive				
	Eastbound	Left	100	110
	Southbound	Left	110	120
	Southbound	Thru/Right	480	500
Dallas-Rickreall Hwy & Fir Villa Road				
	Northbound	Right	200	220
W Ellendale Ave & Levens Drive				
	Eastbound	Thru	380	430
	Eastbound	Right	170	190
	Westbound	Left	110	180

Queue lengths were rounded up to the nearest 10 feet.

Queue lengths can impact overall intersection corridor operations by delaying and restricting upstream vehicle movements. This is true for both signalized and unsignalized intersections. For the signalized intersections with separate phase turning lanes, long queues can result in spillback into the main roadway section, thereby blocking side-streets, private driveways and hindering through traffic from proceeding even if that movement has a green signal. Traffic turning left onto a roadway at an unsignalized intersection can also delay right-turning vehicles while they wait for a safe gap in traffic to turn into. The through lanes with a higher queue length than existing storage indicate the queue spilling back to the next intersection, thereby blocking side-streets at that intersection.

All of the intersections listed above have reported V/C ratios higher than ODOT mobility standards except for Washington Street and Main Street, and Miller Avenue and Uglow Street.

Preliminary No-Build Year 2025 Traffic Signal Warrant Analysis

A preliminary traffic signal warrant analysis was conducted for each of the unsignalized intersections that failed to meet the OHP mobility standard in the future (2025) No-Build analysis. The preliminary traffic signal warrant analysis is based upon Warrant 1 (Eight-Hour Vehicular Volume) from the Manual on Uniform Traffic Control Devices (MUTCD). The analysis was based upon forecasted year 2025 30th highest hour ADT volumes, as directed by the ODOT Transportation Planning Analysis Unit (TPAU).

Condition A of the warrant analysis is based upon minimum traffic volumes and is designed to warrant the installation of traffic signals at intersections where there are large volumes of intersecting traffic. Condition B of the warrant analysis is based upon interruption of continuous traffic and is designed to warrant the installation of a traffic signal at intersections where heavy major movements restrict minor turn movements. A location must meet one of these conditions to warrant the installation of a traffic signal. The MUTCD Millennium Edition provides more discussion on specifics of the warrant analysis.

As shown in Table 4-17, the analysis found that seven of the 12 unsignalized intersections will likely meet signal warrants in year 2025 under No-Build 30th highest hour conditions. Preliminary traffic signal warrant analysis worksheets are included in Appendix G for each of the intersections listed below.

TABLE 4-17
Results of Preliminary Traffic Signal Warrant Analysis – No-Build (2025) 30th Highest Hour

Intersection	Meets Preliminary Warrant
Kings Valley Highway and Orchard Drive	Yes – Condition A and B
Dallas-Rickreall Highway and Fir Villa Road	Yes – Condition A and B
Dallas-Rickreall Hwy and Oak Villa Road	No
Dallas-Rickreall Hwy and Polk Station Rd	Yes – Condition A and B
Monmouth Cutoff Road and Godsey Road	Yes – Condition B
W Ellendale Ave and James Howe Road	Yes – Condition B
W Ellendale Avenue and Levens Street	Yes – Condition B
Washington Street and Jefferson Street	No
Mill Street and Main Street	Yes – Condition A
Mill Street and Jefferson Street	No
Miller Avenue and LaCreole Drive	No
Miller Avenue and Godsey Road	No

As noted on the preliminary traffic signal warrant analysis worksheets, traffic signals may not be installed in all locations meeting the preliminary signal warrant. Further investigation must be done and submitted through ODOT Region 2 Traffic for consideration and approval.

Summary of Future Transportation System Needs

This section describes long- and short-term needs of the transportation system in Dallas. The needs in this section have not been prioritized.

Roadway Improvements

Table 4-18 provides a set of preliminary transportation system improvements for each of the roadway segments or intersections observed to have problems under the 2025 No-Build condition.

TABLE 4-18

Potential Roadway Improvements

No.	Street or Intersection	Potential Transportation System Improvement
Capacity		
1	Dallas Rickreall Highway	Add 2 lanes to Dallas Rickreall Highway from North Dallas Intersection to Fir Villa
2	Webb Lane	Webb Lane extension to Kings Valley Highway
Connectivity		
3	Fir Villa Road	Extend Fir Villa Road to Monmouth Cut-Off
4	Rickreall Creek	Extend River Drive south across Rickreall Creek, connecting to Mill Street
Barberry Node Connections		
5	Hawthorne Avenue	Extend Hawthorne Avenue south to Barberry Avenue
6	Hankel Street	Extend Hankel Street east to eastern city limits
7	Academy Street	Extend Academy Street east, connect with Hankel Street just west of Fir Villa Road
8	Barberry Avenue	Extension of Barberry Avenue east to E Ellendale
LaCreole Node Connections		
9	LaCreole Drive	Extend LaCreole Drive north to Kings Valley Highway
10	Hawthorne Avenue	Extend Hawthorne Avenue north to connect with new east-west circulation road
11	Polk Station Road and Hawthorne Avenue	New east-west circulation road connecting Polk Station Road and Hawthorne Avenue
Wyatt Node Connections		
12	Wyatt Street	Extend Wyatt Street north to City boundary (or Webb Road)
13	James Howe Road to Denton Avenue and Fairhaven Lane	Create east-west connector road from James Howe Road to Denton Avenue and Fairhaven Lane
Alternate Circulation Options for LaCreole and Barberry Nodes		
14	Bovard Avenue	Extend Bovard Avenue east to Oak Villa Road
Other City-Suggested Circulation Improvements		
16	Jasper Street	Extend Jasper Street north to city limits
17	Wood Lane	Extend River Drive north to city limits

TABLE 4-18

Potential Roadway Improvements

18	SW Residential Area	New connector west from Fairview to serve residential development in southwest quadrant of city
19	Connection to Weyerhauser Mill	New connector east from Fairview to provide access to Weyerhauser Mill to/from the south
20	Connection from Weyerhauser Mill	New connector from behind Weyerhauser Mill east to Uglow Avenue
21	Fern Avenue	Extend Fern Avenue east to Kings Valley Highway
Intersection Improvements		
22	Dallas-Rickreall Highway and Fir Villa Road	Signal
23	Dallas-Rickreall Highway and Oak Villa Road	Revisit after evaluating capacity improvements
24	Dallas-Rickreall Highway and LaCreole Drive	Revisit after evaluating capacity improvements
25	Dallas-Rickreall Highway and Polk Station Road	Signal and/or added turn pocket
26	Kings Valley Highway and Orchard Drive	Signal or channelization change
27	Dallas-Rickreall Hwy and Kings Valley Hwy (North Dallas Intersection)	Revisit after evaluating capacity improvements
28	W Ellendale Avenue and Levens Street	Change stop control or add signal
29	W Ellendale Avenue and James Howe Road	Add southbound left turn pocket
30	Mill Street and Main Street	Explore ways to channel traffic onto Washington Street
31	Mill Street and Jefferson Street	Explore ways to channel traffic onto Washington Street
32	Kings Valley Highway and Levens Street	Channelization change, signal timing change or added WBR turn pocket
33	Washington Street and Jefferson Street	Revisit after evaluating capacity improvements
34	Miller Avenue and Uglow Street	Realignment
35	Miller Avenue and LaCreole Drive	Revisit after evaluating capacity improvements then possibly add signal
36	Miller Avenue and Godsey Road	Signal and/or added northbound left turn pocket
37	Monmouth Cutoff Road and Godsey Road	Add southbound left turn pocket. Consider realignment of intersection. Eastbound LT and Westbound RT, Southbound LT, possible signal.

Bicycle Improvements

Bicycle improvements were identified to connect existing bicycle facilities, to connect various attraction areas for bicyclists (e.g., the Aquatic Center, downtown, the Creek), and along City arterials and Connectors. Three types of bicycle improvements were recommended – on-street bicycle lanes, shared-use paths, and signed bicycle routes. On-street bicycle lane improvements are organized into short-term and long-term needs. Short-term needs are those that are "warranted" today given existing traffic volumes and use. It is expected that many of these improvements can be integrated into future roadway projects.

Long-term needs are those where currently there is no need for dedicated facilities but this need is expected once the three mixed-use nodes are developed and roadway traffic increases.

Potential bicycle improvements are outlined in Table 4-19.

TABLE 4-19

Potential Bicycle Improvements

No.	Street	Potential Transportation System Improvement
Bicycle Lanes or Routes - Short Term		
B-1	Ellendale Avenue / Dallas-Rickreall (223)	Stripe bicycle lanes from western city limits to eastern city limits
B-2	Levens Street	Stripe bicycle lanes from Ellendale to Academy
B-3	King's Valley Highway	Stripe bicycle lanes on both sides of roadway from Ellendale to Orchard; on north side of roadway from Orchard to city limits
B-4	LaCreole Drive	Stripe bicycle lanes from Ellendale to Miller Avenue
B-5	Fir Villa Road	Stripe bicycle lanes or bikeway shoulder from Ellendale to Miller Avenue
B-6	Miller Avenue	Stripe bicycle lanes on both sides of roadway from LaCreole to Fir Villa
B-7	Monmouth Cutoff Road	Stripe bicycle lanes from Uglow to city limits
B-8	Uglow Avenue	Stripe bicycle lanes from Monmouth Cut-Off to Washington Street
B-9	Washington Street	Stripe bicycle lanes from Uglow Avenue to Main
B-10	Main Street	Stripe bicycle lanes from Ellendale to Washington
B-11	Jefferson Street	Stripe bicycle lanes from Main to Washington
Bicycle Lanes or Routes - Long Term		
B-12	River Drive	Stripe bicycle lanes from Ellendale to Mill Street
B-13	Orchard Drive	Stripe bicycle lanes from King's Valley Highway to city limits
B-14	Polk Station Road	Stripe bicycle lanes from King's Valley Highway to Ellendale / Dallas-Rickreall (223)
B-15	Hawthorne Avenue	Stripe bicycle lanes from Ellendale / Dallas-Rickreall (223) to Barberry Avenue
B-16	Hankel Street	Stripe bicycle lanes from Hawthorne to Main Street
B-17	Godsey Road	Stripe bicycle lanes from Miller Avenue to

TABLE 4-19

Potential Bicycle Improvements

		Monmouth Cut-Off
B-18	Mill Street	Stripe bicycle lanes from Uglow to River Drive
B-19	Washington Street and Fairview Avenue	Stripe bicycle lanes from Main Street to city limits
B-26	New Collectors and Arterials	Add bicycle lanes to future collector and arterial streets as per development code.
Bicycle Routes		
B-20	Walnut Avenue	Comprehensively sign from Levens to LaCreole
B-21	Main Street	Sign from Washington to Ash
B-22	Jefferson Street	Sign from Washington to Ash
B-23	Hayter Street	Sign from Maple to Oakdale
B-24	Oakdale Avenue	Sign from Hayter to Fairview
B-25	Maple Street	Sign from Fairview to terminus of Maple
Multi-Use Paths		
T-1	Rickreall Creek Trail	Build trail from Lyle Street to Fenton Street, provide connections over Rickreall Creek at Uglow and Aquatic Center
T-2	Rickreall Creek Trail East Extension	Build trail on north side of Rickreall Creek from LaCreole to Fir Villa, linking new roadways and neighborhoods intermittently

Pedestrian Improvements

The Dallas pedestrian system is comprehensive in certain areas such as downtown and along most major roadways, but lacking in other areas, such as on the outskirts of town and in developments built before City development code required sidewalks to be constructed with new development. A series of pedestrian improvements are recommended. These include new sidewalks, expansion of existing sidewalk networks (such as installation of sidewalk on both sides of roadway where currently the sidewalk is only on one side), improvements to existing sidewalk networks (such as curb cuts, planters, or widening), and pedestrian crossing improvements at specific intersections (such as minimizing crossing distance, improved crosswalks, and minimizing potential obstructions).

Potential pedestrian improvements are outlined in Table 4-20.

TABLE 4-20

Potential Pedestrian Improvements

New Sidewalks		
P-1	Ellendale Avenue	Construct new sidewalk from Wyatt to River Drive
P-2	River Drive	Construct new sidewalk over Rickreall Creek from River Drive to Mill Street
P-3	King's Valley Highway	Construct new sidewalk on south side of roadway from Wal-Mart to Polk Station Road; on north side of roadway from 100' east of Dallas Drive to Polk Station Road
P-4	Dallas-Rickreall Highway (223)	Construct new sidewalks from LaCreole to Fir Villa
P-5	Fir Villa Road	Construct new sidewalks from Dallas-Rickreall Highway to existing sidewalk
P-6	Miller Road	Construct new sidewalk from just east of LaCreole to just west of Fir Villa
P-7	Godsey Road	Construct new sidewalks from Monmouth Cut-Off to Miller Avenue
P-8	Uglow Avenue	Construct new sidewalks from railroad tracks to Monmouth Cut-Off
P-9	Fairview Avenue	Construct new sidewalks from Oakdale Road to Bridlewood Drive
P-10	Maple Street	Construct new sidewalk from Lyle to Uglow on south side of roadway
P-17	New Collectors and Arterials	Construct new sidewalk on future collectors and arterials
P-18	Monmouth Cutoff Road	Construct new sidewalks on Monmouth Cut-Off from Uglow Avenue to Godsey Road
Sidewalk Improvements		
P-11	Ellendale Avenue	Construct new sidewalk on north side of roadway from Wyatt to city limits
P-12	Levens Street	Widen and improve sidewalk condition, particularly in front of school from Ellendale to Rickreall Creek
P-13	Ellendale Avenue	Widen sidewalk between LaCreole and Levens, possible buffering with landscaping
P-14	Mill Street	Improve sidewalk condition between Jefferson and Uglow, make curb ramps ADA accessible, fill in missing segments
P-15	Uglow Avenue	In-fill sidewalk segments between Ash Street and railroad tracks
P-16	LaCreole Drive	In-fill sidewalk segment on east side of roadway between Walnut and Barberry
Intersection Improvements		

TABLE 4-20

Potential Pedestrian Improvements

I-1	Levens and Ellendale	Improve pedestrian safety with various treatments, including raised medians (pork chops), marked crosswalks, illumination
I-2	Levens and Walnut	Improve pedestrian safety with various treatments, including marked crosswalk, warning signage, illumination, curb extensions
I-3	North Dallas Intersection - Dallas-Rickreall/Ellendale/King's Valley/Main	Improve pedestrian safety with various treatments, including raised medians (pork chops) and upgraded curb ramps
I-4	Dallas Drive and King's Valley Highway	Improve pedestrian safety with raised median, marked crosswalk, illumination, and warning signs
I-5	LaCreole and Miller	Improve pedestrian safety by signalizing intersection, marking crosswalks, and installing pedestrian signal heads
I-6	Ash and Uglow	Improve pedestrian and bicyclist safety with marked crosswalks, curb extensions, and warning signage
I-7	Maple and Fairview	Improve pedestrian and bicyclist safety with marked crosswalks, curb extensions and warning signage

Transit

The City does not directly operate transit service in Dallas. Rather, point-deviated fixed route transit is operated by the Chemeketa Area Regional Transit System (CARTS), and paratransit service is provided by Polk County Dial-A-Ride.

Opportunities for Higher-Quality Service

Several opportunities are available for the City to coordinate with area transit service providers and the Oregon Housing Associated Services (OHAS) to provide higher-quality transit service to City residents and employees:

- **Increase Service Frequency.** Currently, CARTS operates 10 runs servicing Dallas, Rickreall, Salem, Monmouth, and Independence. These runs are provided during the weekday peak hours only. A 2004 survey of riders indicated that midday and evening service would be of interest to riders, both those commuting to and from Salem and to non-commuter patrons using transit service during non-peak times. The City of Dallas should coordinate with CARTS to identify potential operation and rolling-stock funding sources to operate more frequent service, including the potential need to procure additional transit vehicles.

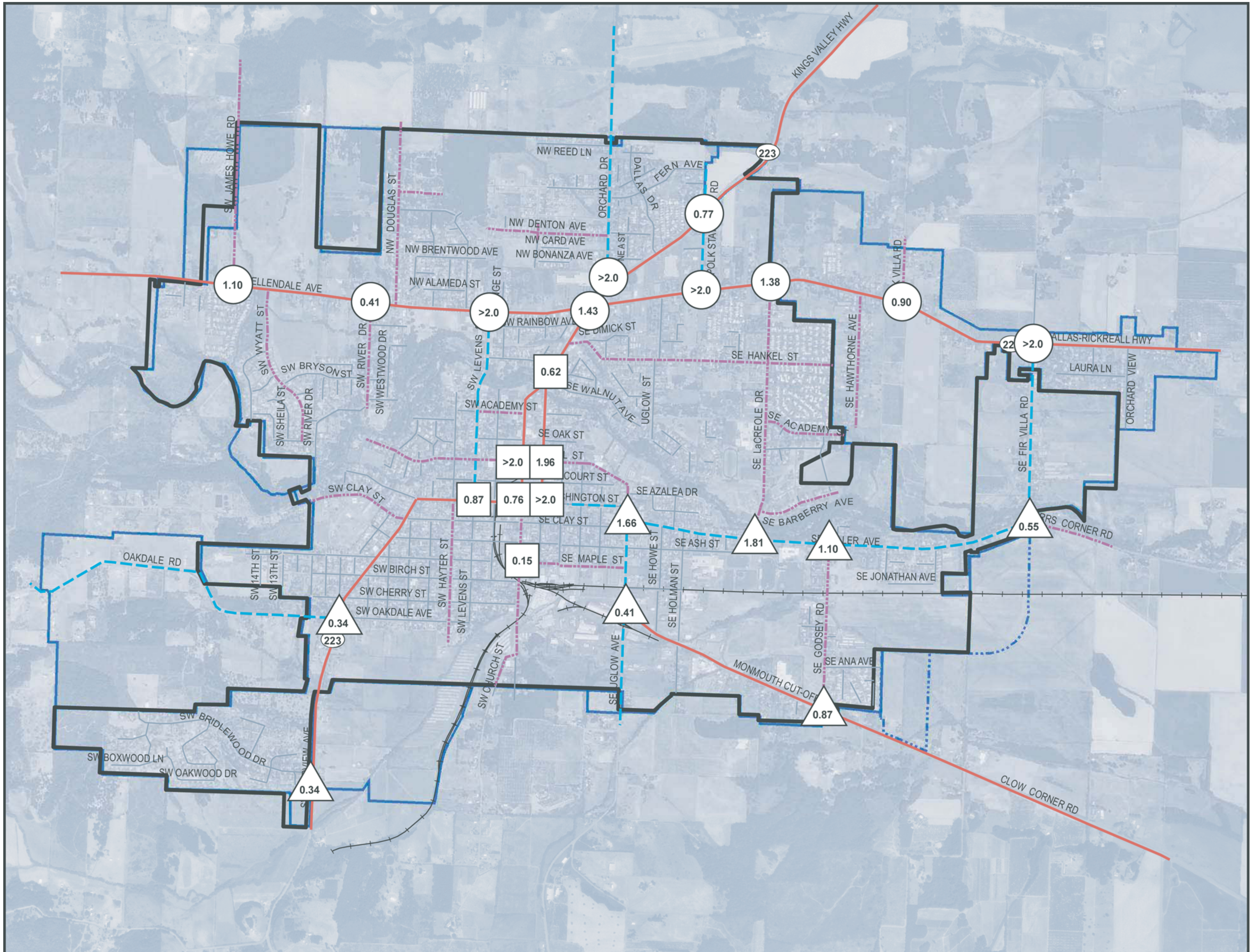
- **Weekend Service.** CARTS service does not operate on weekends. The recent ridership survey conducted for CARTS service also indicated that weekend service is of great interest. The City of Dallas should coordinate with CARTS to identify potential funding sources for operating weekend service.

- **Education and Advertisement.** The City of Dallas should work with area transit agencies to jointly advertisement transit service within the City, and inform residents of transit options.
- **Extension of Cherriots Service.** Future service to Dallas is mentioned as a possibility in the short-range element of Cherriots' Strategic Business Plan. In this plan, Cherriots identifies funding to be made available in fiscal year 2008 or later that could be available to explore expanding commuter services to communities near Salem. The City of Dallas is encouraged to coordinate with Cherriots to identify demand for this service within Dallas, and on possible scheduling and routing issues.
- **Park-and-Ride Lot.** According to CARTS' spring 2004 ridership survey, over half the riders boarding a CARTS bus in Dallas disembarked in Salem. Furthermore, a significant percentage of Dallas residents commute by automobile to Salem each workday. There is a potential demand for a park-and-ride facility on the east end of Dallas for CARTS and possible future Cherriots service. Often, park-and-ride facilities can be located in existing parking lots that are currently used for other purposes and not demanded during the weekday. Potential compatible uses for a commuter parking lot include churches, fraternal organizations, cinemas, and dinner-oriented restaurants.
- **Transit Amenities.** CARTS buses currently stop at 12 fixed locations in the City of Dallas. These include the hospital, Goodwill, the Aquatic Center, downtown, in front of the Safeway, and in front of the Wal-Mart. The City should coordinate with other relevant agencies to improve transit amenities at these locations, by either building new facilities or replacing existing facilities over time. Transit amenities include transit shelters with rain and wind protection, benches, trash receptacles, and schedule information. All transit stops should be accessible to all potential riders as per standards provided in the Americans with Disabilities Act.

Safety Improvements

- **Access Management.** Access management efforts along OR 223 would be expected to improve safety along the highway.
- **Sight Distance and Stop Control.** Evaluate sight distance and stop control at the following intersections: Dallas-Rickreall Highway / La Creole Road, Ellendale / Levens, and Dallas-Rickreall / Fir Villa Road. Coordinate findings with capacity improvements above.
- **Signage/Orientation.** Evaluate the potential integration of a coordinated signage/wayfinding system through the Main/Jefferson couplet to reduce confusion and improve safety at the couplet's north and south ends. This is especially recommended for the southern end of the couplet.

Insert Figures 4-1a through 4-1d



Dallas TSP

Figure 4-1a
Future No-Build (2025)
30th Highest Hour V/C Ratios

Dallas, OR

Legend

- x.xx See Figure 4-1b for Intersection Data
- x.xx See Figure 4-1c for Intersection Data
- x.xx See Figure 4-1d for Intersection Data
- x.xx Intersection V/C Ratio
- Arterial
- Minor Arterial
- Collector Street
- Local or Other Street
- Railroad
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

0 1,500 3,000 Feet

CH2MHILL

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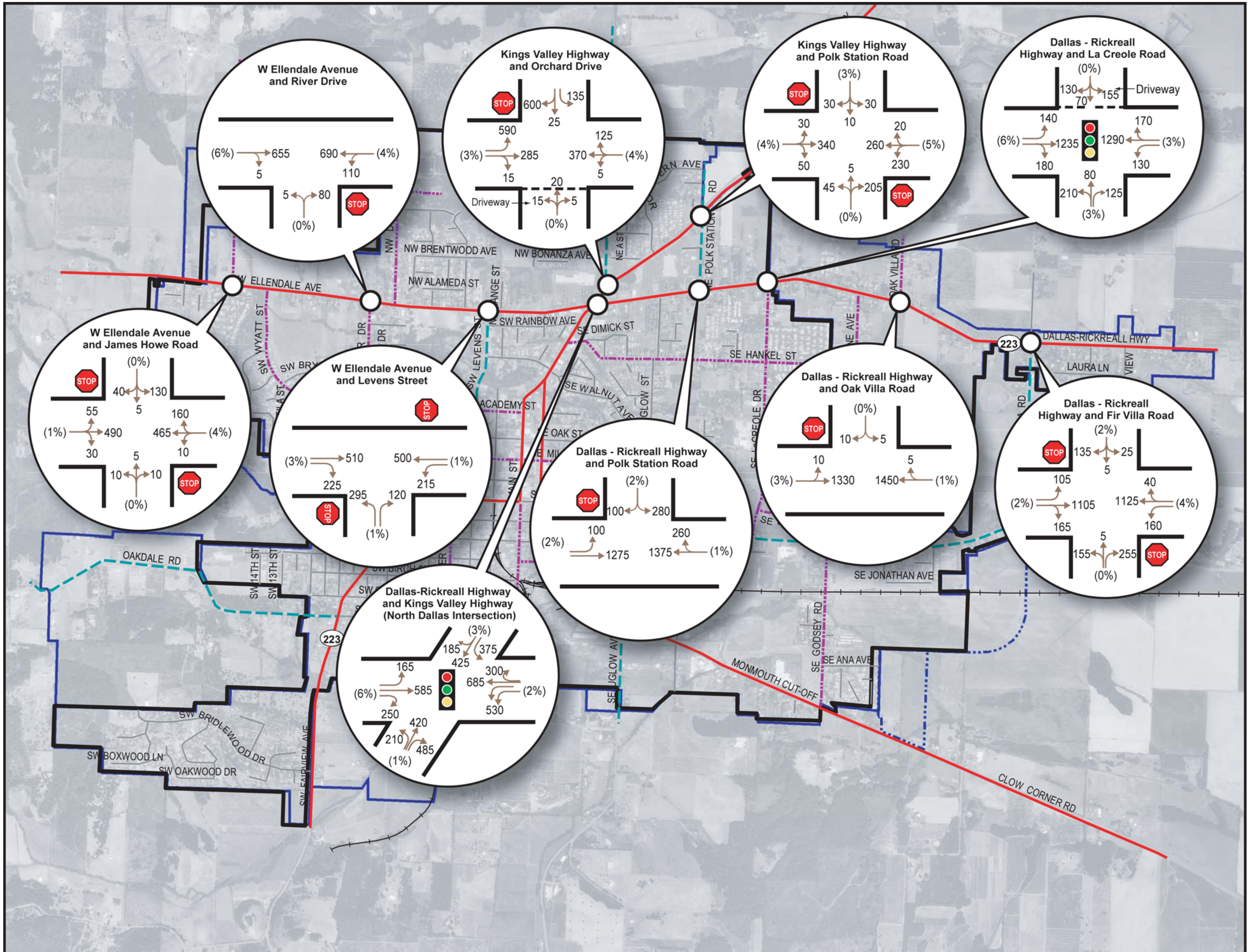

Dallas TSP

Figure 4-1b
Future No-Build (2025)

30th Highest Hour Traffic Volumes, Lane Configurations, and Traffic Control

Dallas, OR

Legend

- Study Intersection
- Stop Sign
- Traffic Signal
- (N%) Freight
- Arterial
- Minor Arterial
- Collector Street
- Local or Other Street
- Railroad
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

0 1,500 3,000 Feet

CH2MHILL

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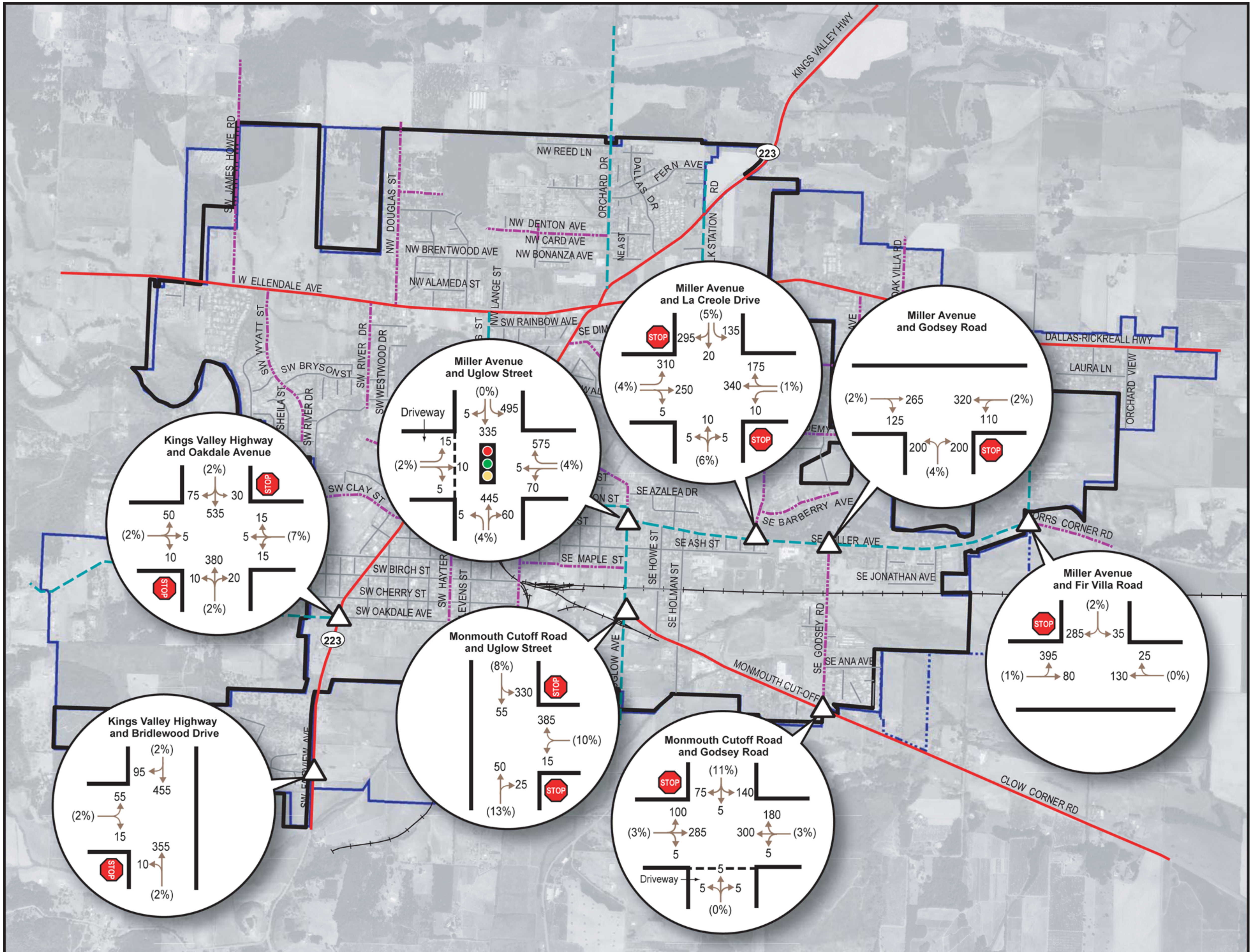

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Dallas TSP

Figure 4-1c
Future No-Build (2025)

30th Highest Hour Traffic Volumes, Lane Configurations, and Traffic Control

Dallas, OR

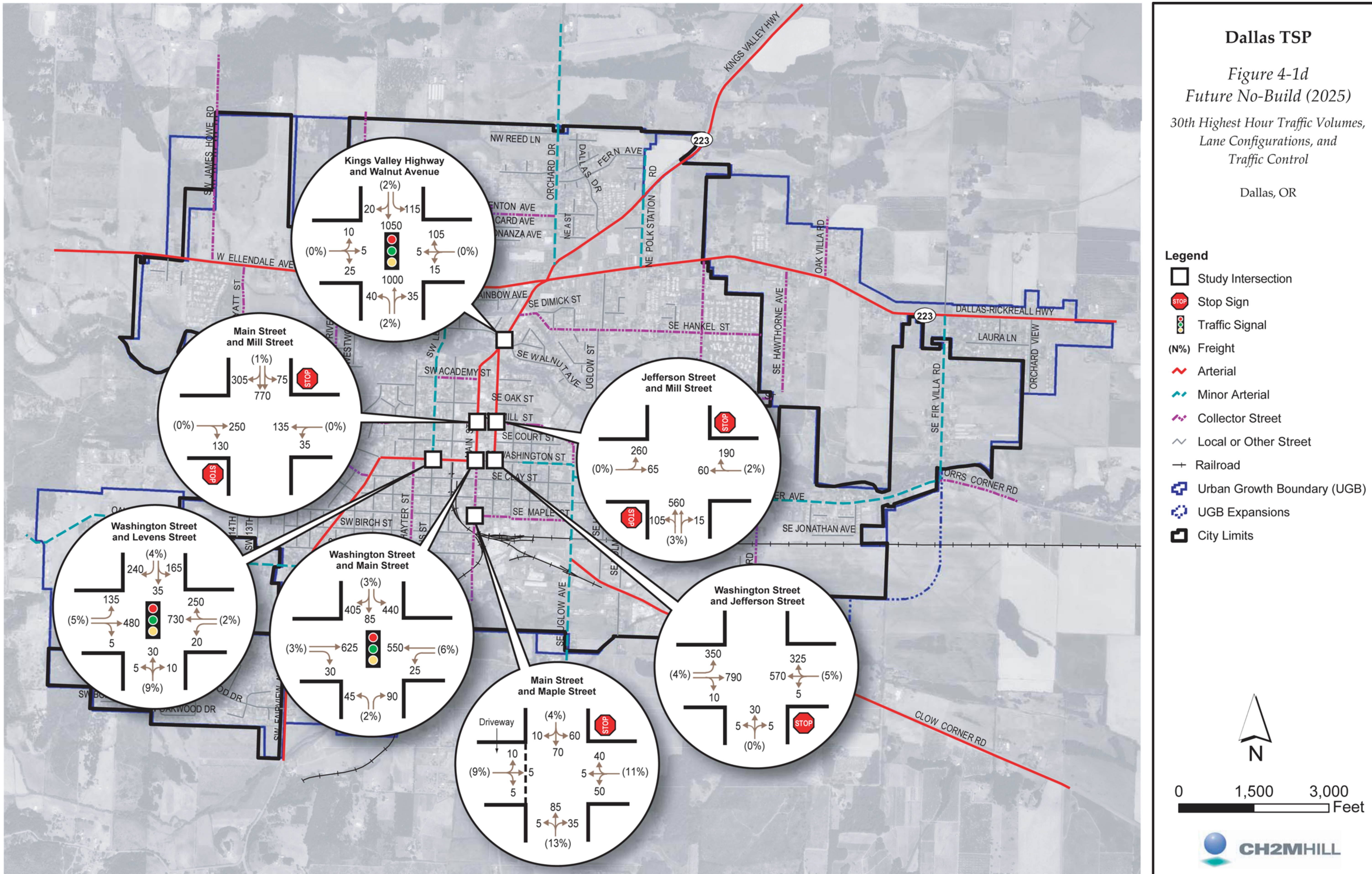
Legend

- Study Intersection
- Stop Sign
- Traffic Signal
- (N%) Freight
- Arterial
- Minor Arterial
- Collector Street
- Local or Other Street
- Railroad
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

0 1,500 3,000 Feet

CH2MHILL



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SECTION 5

Alternatives Analysis

The purpose of this section is to describe the alternatives evaluation process and recommendations for the Dallas TSP. This evaluation process consisted of four steps. First, a universe of roadway, bicycle, and pedestrian transportation system improvements were identified to address future (2025) transportation deficiencies in the City of Dallas. These are described at the end of section four. Second, improvements were packaged into complementary groups of projects, labeled "alternatives." Third, these alternatives were evaluated against a set of evaluation criteria, developed by the Project Management Team, that reflect the project's goals and objectives. Fourth, a preferred alternative for roadway, bicycle, and pedestrian improvements was identified.

Development of Alternatives

Roadway and bicycle improvements were organized into alternatives for evaluation purposes. This grouping allowed the project team to compare different types of improvements (e.g., expanded capacity, street connectivity) in relation to each other.

Roadway Alternatives

Three future build alternatives were developed from the list of possible roadway options presented at the end of Section four. For one of the alternatives, a substantial modification was also tested. Each of the alternatives provided a suite of improvements for how to improve traffic conditions in Dallas. These alternatives include a capacity alternative, a connectivity alternative, a hybrid alternative that includes both capacity and connectivity improvements, and a modification of the connectivity alternative that included through capacity improvements at certain intersections along Dallas-Rickreall highway. All alternatives included a mixture of roadway segment and intersection improvements.

Alternative 1: Additional Highway/Arterial Capacity

The first alternative added capacity to the Dallas-Rickreall Highway by increasing the number of through lanes to two in each direction from Fir Villa Road to the North Dallas Intersection. Figure 5-1 highlights the major elements of this alternative. By itself Alternative 1 did not alleviate operational deficiencies on the network. However, improvements at 16 study intersections brought this alternative into compliance with state highway mobility standards. These specific improvements are listed in Table 5-1.

This alternative addressed capacity concerns to accommodate expected through movement along the Dallas Rickreall Highway, but as a stand-alone consideration presented a possible conflict with the 1999 OHP's major improvement policy, which states that, for state facilities, ODOT should "maintain highway performance and improve safety by improving system efficiency and management before adding capacity" (OHP, pg. 82). This alternative also does not address connectivity improvements already identified by the City of Dallas.

Alternative 2: Increased Local Connectivity and Capacity

Alternative 2 looked at constructing a series of 19 connector streets to link forecasted future development with existing facilities (see Figure 5-2). The intention of this alternative is to provide transportation facilities that would reduce local traffic from the state highway, and thereby improve conditions along Dallas Rickreall and at the North Dallas Interchange. These streets are intended to provide connections to expected areas of residential, commercial, and industrial growth in the City of Dallas.

The additional circulation provided by Alternative 2 made it attractive for some travelers to use these connectors in lieu of the E Ellendale and Kings Valley Highways. In particular, the construction of the Webb Lane extension would be attractive for travel between points east of Dallas (e.g., Salem) and NW Dallas to use Kings Valley Highway and the Webb Lane extension as opposed to the Dallas Rickreall Highway. Approximately 40 percent of travelers between these two areas were assumed to make this switch.

Another assumed change in travel behavior resulting from Alternative 2 was a reroute from Godsey Road to the Fir Villa Avenue extension. Approximately 65 percent of vehicles traveling between the Monmouth Cutoff Road and the Dallas Rickreall Highway that, under the future no-build, were assumed to use Godsey Road and Miller Avenue were assumed to use the new Fir Villa extension when complete. Fir Villa is more attractive because its classification as an arterial will allow higher travel speeds. The through movement at the Fir Villa/Miller intersection is assumed to have lower wait times than the left-turn from Miller to Fir Villa.

Alternative 2 did not alleviate operational deficiencies on the network. Even when intersection improvements were considered with this alternative, congestion problems were not eliminated. By the year 2025, six Dallas intersections would experience operational deficiencies under Alternative 2, with fully improved intersections. Five of these six intersections are along the Dallas Rickreall Highway. Further analysis shows that the through movement is creating congestion along the highway. Connectivity improvements without capacity improvements were therefore insufficient to address traffic operations issues.

Table 5-1: Dallas TSP V/C Ratio Alternatives Comparison

Intersection (Organized by existing condition signalized or unsignalized)	Design Mobility Standard		Future No-Build Model V/C Ratio		Alt. 1 Capacity Model V/C Ratio		Alternative 1 - Added Capacity Model Local Intersection Improvements	Alt. 2 Connectivity Model V/C Ratio		Alternative 2 - Added Connectivity Model Local Intersection Improvements	Alt. 2A Modified Alt. 2 Model V/C Ratio		Alternative 2A -Added Connectivity Model with Through Capacity Intersection Improvements	Alt. 3 Hybrid Model V/C Ratio		Alternative 3 - Capacity - Connectivity Hybrid Local Intersection Improvements
	Major	Minor	Major	Minor	Major	Minor		Major	Minor		Major	Minor		Major	Minor	
Signalized																
Kings Valley Hwy and Levens Street	0.80		**0.87**		0.78		Added exclusive WBR and made all westbound lanes 12 feet	0.75			0.75			0.75		
Dallas-Rickreall Hwy and Kings Valley Hwy (N. Dallas intersection)	0.80		**1.43**		**0.82**		Added exclusive EBR, WBR, and SBR; second EBT, WBT, and SBL	**1.02**		Added exclusive EBR, WBR, and SBR	**0.85**		Added exclusive EBR, WBR, and SBR; second EBT and WBT	**0.85**		Added exclusive EBR, WBR, and SBR; second EBT and WBT
Dallas-Rickreall Hwy and LaCreole Drive	0.75		**1.38**		**0.78**		Added second EBT and WBT; exclusive NBL, SBL, and SBR; and made NBL lagging Prot/Perm	**0.88**		Added exclusive EBR, WBR, NBL, SBL, SBR, and Permitted Protected NBL	0.71		Added second EBT and WBT; exclusive NBL and made NBL lagging Prot/Perm	0.71		Added second EBT and WBT; exclusive NBL and made NBL lagging Prot/Perm
Washington Street and Main Street	0.95		0.76		0.76			0.66			0.66			0.66		
Miller Avenue and Uglow Street	0.80		0.66		0.71			0.75			0.75			0.75		
Kings Valley Hwy and Walnut Ave	0.80		0.62		0.62			0.67			0.67			0.67		
Unsignalized																
Kings Valley Hwy and Bridlewood Dr	0.75	0.80	0.34	0.21	0.34	0.21		0.01	0.55		0.01	0.55		0.01	0.55	
Kings Valley Hwy and Oakdale Ave	0.80	0.80	0.03	0.34	0.03	0.34		0.02	0.19		0.02	0.19		0.02	0.19	
Kings Valley Hwy and Orchard Drive	0.80	0.80	0.59	**> 2.0**	0.75		Added signal and second EBL	0.57		Added signal and second EBL	0.57		Added signal and second EBL	0.57		Added signal and second EBL
Kings Valley Hwy and Polk Station Rd	0.80	0.80	0.22	0.77	0.22	0.77		0.11	0.26		0.11	0.26		0.11	0.26	
Dallas-Rickreall Hwy and Fir Villa Road	0.75	0.80	**0.79**	**> 2.0**	**0.77**		Added signal and second EBT and WBT	**0.92**		Added signal; exclusive EBR, WBR, SBR; and Permitted/Protected EB/WB LTs	0.49		Added signal and second EBT and WBT	0.49		Added signal and second EBT and WBT
Dallas-Rickreall Hwy and Oak Villa Road	0.75	0.80	**0.90**	0.40	0.60	0.18	Added second EBT and WBT	0.75		Added signal	0.51	0.13	Added second EBT and WBT	0.51	0.13	Added second EBT and WBT
Dallas-Rickreall Hwy and Polk Station Rd	0.80	0.80	0.79	**> 2.0**	0.76		Added signal; exclusive WBR; and second EBT and WBT	**0.96**		Added signal; exclusive WBR, SBR; and Permitted/Protected EBL	0.72		Added signal and second EBT and WBT	0.72		Added signal and second EBT and WBT
Monmouth Cutoff and Uglow Street	0.80	0.80	0.23	0.41	0.23	0.41		0.23	0.41		0.23	0.41		0.23	0.41	
Monmouth Cutoff and Godsey Road	0.75	0.80	0.10	**0.87**	0.10	0.72	Added exclusive SBL	0.04	0.31		0.04	0.31		0.04	0.31	
W Ellendale Ave and James Howe Rd	0.80	0.80	0.06	**1.10**	0.32	**0.84**	Added exclusive SBL, EBL, and WBR	0.12	0.67	Only added exclusive SBL	0.12	0.67	Only added exclusive SBL	0.12	0.67	Only added exclusive SBL
W Ellendale Ave and River Drive	0.80	0.80	0.41	0.24	0.41	0.24		0.33	0.43		0.33	0.43		0.33	0.43	
W Ellendale Ave and Levens Street	0.80	0.80	0.19	**> 2.0**	0.69		Added signal and Protected/Permitted WBL	0.55		Added signal and Protected/Permitted WBL	0.55		Added signal and Protected/Permitted WBL	0.55		Added signal and Protected/Permitted WBL
Washington Street and Jefferson Street	0.95	0.95	0.51	**> 2.0**	0.69		Added signal; Protected EBL; and exclusive WBR	0.79		Added signal; Protected EBL	0.79		Added signal; Protected EBL	0.79		Added signal; Protected EBL
Mill Street and Main Street	0.95	0.95	0.43	**> 2.0**	0.64		Added signal and Permitted left-turns	0.63		Added signal and Permitted left-turns	0.63		Added signal and Permitted left-turns	0.63		Added signal and Permitted left-turns
Mill Street and Jefferson Street	0.95	0.95	0.19	**1.96**	0.64		Added signal and Permitted left-turns	0.64		Added signal and Permitted left-turns	0.64		Added signal and Permitted left-turns	0.64		Added signal and Permitted left-turns
Main Street and Maple Street	0.80	0.80	0.04	0.15	0.04	0.15		0.04	0.15		0.04	0.15		0.04	0.15	
Miller Avenue and LaCreole Drive	0.80	0.80	0.32	**1.81**	0.32	**1.81**	Recommend monitoring	0.31	**1.12**	Recommend monitoring	0.31	**1.12**	Recommend monitoring	0.31	**1.12**	Recommend monitoring
Miller Avenue and Godsey Road	0.80	0.80	0.24	1.10	0.24	0.80	Added exclusive NBR	0.21	0.41		0.21	0.41		0.21	0.41	
Miller Avenue and Fir Villa Road	0.75	0.80	0.29	0.55	0.29	0.55		0.67	0.66	Changed to 4-Way Stop from TWSC	0.67	0.66	Changed to 4-Way Stop from TWSC	0.67	0.66	Changed to 4-Way Stop from TWSC
James Howe Road and Denton Avenue	0.80	0.80	Intersections not a part of the future no-build model or the capacity model.					0.07	0.07		0.07	0.07		0.07	0.07	
Kings Valley Hwy and Fern Avenue	0.75	0.80						0.17	0.77		0.17	0.77		0.17	0.77	
Kings Valley Hwy and Webb Lane	0.75	0.80						0.35	0.39		0.35	0.39		0.35	0.39	
Clow Corner Road and Fir Villa Rd Ext.	0.80	0.80						0.30	0.43		0.30	0.43		0.30	0.43	
Weyerhauser Way and Uglow Street	0.80	0.80						0.16	0.26		0.16	0.26		0.16	0.26	
Webb Lane and Orchard Drive	0.80	0.80						0.07	0.12		0.07	0.12		0.07	0.12	
Dallas-Rickreall Hwy and Barberry Avenue	0.75	0.80						**0.92**		Added signal; exclusive EBR, WBR, NBR; and Permitted/Protected WBL	0.70		Added signal	0.70		Added signal

Modification to Alternative 2 (Alternative 2A): Connectivity Improvements with Additional Intersection Capacity Along Dallas-Rickreall

Alternative 2A focuses on through and turning capacity improvements at the North Dallas Intersection, La Creole Drive, Polk Station Road, Fir Villa Road, and Barberry Avenue, while avoiding the widening of this entire section of the Dallas Rickreall Highway except as necessary in the vicinity of each intersection. The addition of one through lane in each direction at these intersections will be dependent on the length of the 95th percentile queues and ODOT Highway Design criteria.

This alternative also includes the connectivity improvements as were included in alternative 2. This alternative is considered to be in compliance with the 1999 OHP Major Investments Policy and brings the roadway network into compliance with OHP mobility standards.

Alternative 3: Capacity-Connectivity Hybrid

Alternative 3 combines the street connectivity improvements from Alternative 2 with the increased capacity along the Dallas Rickreall Highway from Alternative 1. See Figure 5-3. By itself this alternative did not fully alleviate congestion at all study intersections, but with the addition of improvements at 13 intersections the entire network was brought into compliance with OHP mobility standards.

Alternative 3 is also considered in compliance with the 1999 OHP Major Investments Policy because it is composed of a mixture of smaller improvements and because it is an attempt to address operational deficiencies with the existing system before recommending major capacity improvements. The widening of Dallas Rickreall Highway between the North Dallas Intersection and Fir Villa Road is a controversial subject that is likely to require the acquisition of several parcels and may change the character of the highway.

Travel Time

Table 5-2 displays estimated travel time along the Dallas Rickreall Highway between Fir Villa Road and the north Dallas intersection, and along the highway between Fir Villa and Mill Street in downtown. Estimated travel times are reported for the 30th highest hour in 2025 under the no build and each of the three build alternatives.

TABLE 5-2
Estimated 2025 30th Highest Hour Travel Times for Build Alternatives

From	To	No Build	Alt. 1	Alt. 2	Alt. 2A	Alt. 3
Fir Villa Road	North Dallas Intersection	11:34	4:50	6:20	5:05	5:05
Fir Villa Road	Mill Street	11:57	5:56	7:30	5:57	5:57
North Dallas Intersection	Fir Villa Road	6:52	4:20	7:10	4:30	4:30
Mill Street	Fir Villa Road	8:27	5:30	8:10	5:25	5:25

Travel times are much higher under the no build alternative than they are under each of the three build alternatives. Travel times under Alternatives 1, 2A, and 3 are similar between downtown and Fir Villa Road. The slightly higher travel times along Dallas Rickreall under

Alternatives 2A and 3 (15 seconds in the westbound direction, 10 seconds in the eastbound direction) can be attributed to the additional intersection with Barberry Avenue under Alternatives 2A and 3.

Bicycle Alternatives

Three scenarios, or alternatives, were developed for evaluating future bicycle and pedestrian facility implementation. The first scenario sustained the city's current method of bicycle facility implementation through the use of signed bicycle routes and the development of a multi-use trail along Rickreall Creek. The second scenario was one of maximum implementation, based on nationally recognized best practices for bicycle facilities. This scenario would implement bicycle lanes on all arterials and collectors in the city to provide full, city-wide access. The third scenario, a hybrid of the two previous scenarios, consisted of implementing bicycle lanes on the busiest, highest volume roadways, enhancing the existing bicycle route system, and extending the Rickreall Creek multi-use path. See Figure 5-4.

- *Scenario 1* - Bicycle Routes and Trail Development: This scenario of bicycle facility implementation is the least expensive and simplest to implement. However, since these bicycle facilities are shared roadways, the scenario scored less favorably for user safety, mobility, and contributing to a truly multi-modal transportation system. Safety is the primary concern, particularly on roadways with high volumes and speeds of traffic.
- *Scenario 2* – Bicycle Lanes on All Collectors and Arterials: This scenario best benefits the bicyclist by improving safety, comfort, and connectivity throughout the community. The scenario is also the most consistent with the guidelines established by the Oregon Bicycle and Pedestrian Plan and other federal and state best practice guides. However, this scenario would be the most costly to implement, could be politically challenging, and is not consistent with previous bicycle facility planning efforts of the city for existing roadways.
- *Scenario 3* – Bicycle Lanes on Major Roads, Enhanced Bicycle Routes: Scenario 3 attempts to take the best parts of Scenarios 1 and 2 and combine them to construct a scenario that best meets the needs of local bicyclists and the goals and objectives of the city. This scenario scored well because it enhances safety for both bicyclists and pedestrians, provides excellent mobility and connectivity, and balances the needs and goals of the community. The recommendations for implementation of this scenario follow.

Pedestrian Alternatives

Pedestrian improvements were evaluated individually, and not grouped into scenarios or alternatives. (See Figure 5-5.)

Alternatives Evaluation

Evaluation Criteria

The state TPR provides standards for evaluating transportation system alternatives. According to the TPR, system alternatives should:

- Provide types and levels of transportation facilities and services appropriate to serve land uses identified in the acknowledged comprehensive plan;
- Be consistent with state and federal air quality, land use, and water quality standards;
- Minimize adverse economic, social, environmental, and energy consequences;
- Facilitate connections (minimize conflicts) between modes of transportation; and
- Avoid principal reliance on any one mode of transportation / reduce principal reliance on the automobile.

A set of evaluation criteria was developed, consistent with the TSP goals and objectives listed in Section 1. These criteria, listed in Table 5-3, are intended to address the various elements deemed important to the PMT, the CAC, and the public.

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
Multi-Modal Transportation System: Develop a balanced transportation system that will meet the needs of all users, including youth, elderly, and those with physical disabilities.	++	Project will clearly benefit all users of the transportation system, including the youth, the elderly, and those with disabilities, as well as local retail and manufacturing business owners.
	+	Project directly benefits a subset of transportation system users, and is likely to indirectly benefit all other groups of users of the transportation system.
	0	Project benefits a subset of transportation system users, with no direct or indirect positive or negative impacts to other groups of users.
	-	Project directly benefits only one group of users, with no direct but possible indirect negative impacts to other groups of users.
	--	Project benefits are focused on one group of transportation system users, at the direct expense of other groups of users.
Mobility: provide a viable transportation system that meets state and local mobility standards.	Y	Meets specified OHP mobility standards for each study intersection.
	N	Doe not meet specified OHP mobility standards for one or more study intersection.
Connectivity: provides transportation options that minimize out-of-direction travel and minimize travel times.	++	Provides new transportation options or connectivity to serve different types of users
	+	Improves on the current transportation options or connectivity to serve different types of users
	0	Does not significantly change transportation options or connectivity
	-	Limits the transportation options or connectivity of the system
	--	Significantly reduces or limits key transportation options or connectivity
Economic Development and	++	Project will directly and positively contribute to economic

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
Viability: Provide a transportation system that balances transportation system needs with the City's desire for economic development and viability.		development within the City of Dallas, consistent with the City of Dallas Comprehensive Plan.
	+	Project's benefits are focused on improving an element of the transportation system, but is likely to indirectly contribute to the City's economic development goals, as outlined in the City of Dallas Comprehensive Plan.
	0	Project will neither benefit nor deter the City's economic development goals.
	-	Project's benefits are focused on improving an element of the transportation system, and are likely to indirectly detract from the City's economic development goals.
	--	Project will directly and negatively impact economic development within the City of Dallas, in a way that is inconsistent with the City of Dallas Comprehensive Plan.
Coordination: Maintain a TSP that is consistent with the goals and objectives of the TPR and relevant state, regional, and local plans and policies.	++	Included as part of other local, county, regional or state policies or plans
	+	Mentioned by the city staff, CAC, or other relevant agencies
	0	Not specifically mentioned in other policies or plans, but not out of compliance with such plans
	-	Indirectly not in compliance with other plans and policies
	--	Specifically identified as being not in compliance with other plans and policies
Pedestrian and Bicycle Facilities: Provide for an interconnected system of pedestrian and bicycle facilities in Dallas to serve commuter and recreational users.	++	Creates or completes a bicycle and/or pedestrian link to serve commuters, transit users, and/or recreational users
	+	Improves on the current bicycle and/or pedestrian facilities to serve commuters, transit users, and/or recreational users
	0	Does not significantly change existing non-motorized facilities
	-	Reduces some of the connectivity, safety, or aesthetics of existing non-motorized facilities
	--	Removes key connectivity, safety, or aesthetics of existing non-motorized facilities
System Preservation and Improvements: Develop a strategy to preserve and extend the life of the existing transportation network.	++	Project preserves the functionality of the existing system through improving transportation efficiency without changes to the physical infrastructure (for example, access management, traffic signal operations, transportation demand management, and alternative modes of transportation).
	+	Project improves efficiency and capacity of the existing roadway network through minor improvements to existing roadway facilities (for example, provision of bicycle lanes or sidewalks, left-turn lanes, and widening shoulders).
	0	Project makes substantial improvements to the existing roadway network to improve connectivity for local and regional users (for example, connecting existing dead-end streets to

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
		provide new travel connections).
	-	Project makes major roadway improvements to add capacity to the existing system (for example, adding a general-purpose travel lane).
	--	Project adds an entirely new roadway facility to the transportation network.
Access Management: Address state access management standards as outlined in OAR 734-051 for OR 223 Kings Valley Highway and Dallas-Rickreall Highway, and identify access management strategies for city collectors and arterials.	++	Project adds no new access locations, and specifically develops access control measures consistent with the road functional classification and which limit development on rural land to rural uses and densities.
	+	Project adds no new access locations, and includes general strategies for consolidating access points along the state highway.
	0	Project adds no new access locations, and is not expected to have any influence on future access at its location.
	-	Project adds new access locations, but does so in a way so that future access points near the new location would be difficult to permit.
	--	Project adds new access locations, and/or is expected to create additional conflicts between the state highway and private driveways.
Transportation Funding: Identify reasonable potential funding sources and a funding strategy for transportation improvements included in this TSP.	++	One or more funding sources have been identified and are directly applicable to the project
	+	A funding source is identified that may be applicable
	0	Has no identified funding, but potential funding is considered reasonable
	-	Has no identified funding, project would be considered a moderate risk funding option
	--	Does not have identified funding, project would be considered low priority for funding agencies
Safety: Provide a transportation system that maintains adequate levels of safety for all users.	++	Improves safety for users at an identified safety location
	+	Improves the safety for users at locations not considered deficient
	0	Does not significantly change roadway/facility safety
	-	Safety is diminished slightly for users
	--	The project adds conflict points, or otherwise creates an additional safety problem for users
Environment: Provide a transportation system that balances transportation services with the need to protect the environment and significant natural features.	++	Greatly enhances environmentally significant areas or natural or historic features
	+	Enhances environmentally significant areas or natural or historic features

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
	0	No impacts to environmentally significant areas or natural or historic features
	-	Some impacts to environmentally significant areas or natural or historic features
	--	Significantly affects environmentally significant areas or natural or historic features
Cost:	++	Project cost is in the lowest fifth ($)
	+	Project cost is in the middle-bottom fifth ($$)
	0	Project cost is in the middle ($$$)
	-	Project cost is in the upper middle fifth ($$$$)
	--	Project cost is in the highest fifth ($$$$$)

Scoring of Improvements

Each potential improvement was given a qualitative score ranging from "++" to "- -." The five scales of the scoring process are provided in Table 5-4.

TABLE 5-4
Definition of scores

Score	Definition
++	Project directly addresses the goal, and easily meets the goal's objectives
+	Project addresses the goal at a moderate level, meeting some but not all of the goal's objectives
0	Neither Good nor Bad, or N/A
-	Project does not address the goal, or may have a slight adverse impact on the goal's objectives
--	Project has a substantial negative relation with the goal's objectives

Projects receiving several "--" scores were likely to be excluded because they were deemed infeasible, or because they conflicted with one or more of the project's identified Goals. Some projects with several scores of "--" may, however, be recommended as TSP projects because they have a sufficiently high value to counter the negative ratings in other areas.

Roadway Improvements Evaluation

The evaluation process for roadway improvements was comprised of two steps. The first step was to identify the suite of roadway improvements for each alternative that would best comply with OHP mobility standards. This step is relatively straightforward and is based on traffic analysis. Low-impact options such as signal timing optimization and creating channelization changes through restriping were analyzed first. This was followed by moderate-impact or moderately-priced options such as the addition of a signal or channelization changes that affected existing shoulders, parking, or sidewalk. Improvements associated with greater impacts or costs, such as the acquisition of right-of-way, were included only when lower impact improvements were not sufficient.

The second step was a qualitative, group assessment of how each alternative supported the goals and objectives of the TSP, as translated into evaluation criteria (see previous section). Table 5-5 displays the results of the evaluation process for the roadway alternatives.

TABLE 5-5
Roadway Improvement Alternatives Evaluation

	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
Alternative 1: Capacity Improvements	++	N	+	-	-	++	-	++	0	++	0
Alternative 2: Connectivity Improvements	+	N	++	++	++	++	- -	-	++	+	0
Modified Alternative 2 (Alternative 2A): Connectivity with Selected Capacity	++	Y	++	++	++	+	-	+	++	++	0
Alternative 3: Capacity-Connectivity Hybrid	++	Y	++	++	++	++	- -	-/ ++	0/ ++	++	0

N = No
Y = Yes

A brief description of how well the alternatives met the criteria follows.

- *Multi-Modal Transportation System* – Capacity improvements along Dallas-Rickreall were considered to assist all users of the transportation system – drivers benefit from reduced intersection delay, bicyclists and pedestrians from the sidewalk and bicycle lanes, and because buses travel along the highway transit users (including the youth, elderly, and disabled) also benefit. The connectivity alternative also fared well but was felt to directly assist the subset of users that would use the new facilities, and only indirectly help the rest of users (e.g., transit users).

- *Mobility* – This criterion asks whether the improvements result in the network meeting OHP mobility standards. Alternatives 2A and 3 are the only ones that fully meets OHP mobility standards.
- *Connectivity* – Because both Alternatives 2 and 3 provide new connections to the transportation system, they ranked highly for this criterion. Alternative 1 makes an improvement to current facilities.
- *Economic Development and Viability* – Alternative 1 did not rank highly against this criterion. This is because capacity improvements would require acquisition of right-of-way along the highway to accommodate two additional through lanes. It was felt that this change in land use may trigger more intense development out of character with current zoning and comprehensive plan designations (suburban residential and single-family residential). The alternatives containing new connectors were considered necessary to facilitate planned commercial and mixed-use development in the City's three mixed-use nodes.
- *Coordination* – Alternative 1 did not rank highly for this alternative. Capacity improvements are mentioned in a traffic impact study conducted for the city in 1999 but are not included in the City's Comprehensive Plan. Furthermore it was felt that the capacity improvements may indirectly conflict with the OHP Major Improvements Policy by considering general capacity improvements before smaller, lower impact options. Alternatives 2, 2A, and 3 contain many connector streets called out in the Comprehensive Plan. Furthermore, by looking first at connectivity and smaller-impact projects before capacity, Alternatives 2A and 3 are considered compliant with the OHP Major Improvements Policy.
- *Pedestrian and Bicycle Facilities* – All alternatives rated highly with this criterion. This is because to meet City and State design standards all new roadways or roadway improvements will include pedestrian and bicycle facilities.
- *System Preservation and Improvements* – None of the three alternatives rated well against this criterion, which looks at making small changes to lengthen the life of existing facilities before constructing new ones. Alternative 1 adds capacity to the existing system by adding general-purpose lanes. Alternatives 2, 2A, and 3 build new facilities. It was felt, however, that the new connectors are needed to reduce local travel along the state facility and therefore contribute substantially to network effectiveness.
- *Access Management* – If Alternative 1 were constructed, an access management plan would be implemented along the length of this highway segment, developing access control measures consistent with ODOT Access Management Guidelines. Alternative 2 adds new access points to the system. Alternatives 2A and 3 are a mixture of the previous alternatives.

- *Transportation Funding* – Alternative 1 does not have an identified funding source, though funding was considered reasonable. Many of the connector streets associated with Alternative 2 could be funded through system development charges (SDCs). Alternatives 2A and 3 are a mixture of the previous alternatives.
- *Safety* – The segment of Dallas Rickreall between Fir Villa and the north Dallas intersection has a higher segment crash rate than the statewide average for similar facilities. Improvements associated with Alternative 1 and Alternative 3 are expected to improve safety along this segment of roadway. Locations associated with Alternative 2 and 2A were not identified with safety deficiencies. Improvements associated with Alternative 2 and 2A are still expected to improve safety at these locations.
- *Environment* – None of the alternatives were expected to significantly impact environmentally significant areas or natural or historic features.

Alternative 2A was rated most favorably by the PMT because it contained connectivity improvements to serve expected development and reduce local traffic from state highway facilities. Furthermore, this alternative contained capacity improvements needed to fully comply with state highway mobility standards. Table 5-6 provides evaluation of all individual projects comprising Alternative 2A.

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
Dallas Rickreall Highway	Add capacity to Dallas Rickreall Highway from NDI to LaCreole	++	N	+	-	-	++	-	++	0	++	0
Webb Lane	Webb Lane extension to Kings Valley Highway	+	Y	++	+	++	++	-	-	+	+	
Fir Villa Road	Extend Fir Villa Road to Monmouth Cut-Off	++	N	+	++	++	++	0	-	0	+	0
Cross Rickreall	Extend River Drive across Creek and	+	Y	++	0	++	+	0	0	0	0	0

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
Creek	connect to Mill Street											
Hawthorne Avenue	Extend Hawthorne Ave to Barberry Ave	+	N/A	++	+	++	++	0	0	++	+	0
Hankel Street	Extend Hankel Street east to city limits	+	N/A	++	+	++	++	0	0	++	+	0
Academy Street	Extend Academy Street east to Hankel just west of Fir Villa	+	N/A	++	+	++	++	0	0	++	+	0
Barberry Avenue	Extension of Barberry Ave east to Fir Villa Rd	+	N/A	++	+	++	++	0	0	++	+	0
LaCreole Drive	Extend LaCreole north to Kings Valley Hwy	+	N	++	+	++	++	0	0	++	+	0
Hawthorne Avenue	Extend Hawthorne north to connect with new circulation road	+	N/A	++	+	++	++	0	0	++	+	0
Polk Station / Hawthorne	New E-W circulation road connecting Polk Station and Hawthorne	+	N/A	++	+	++	++	--	-	++	+	0
Wyatt Street	Extend Wyatt Street north to City boundary (or Webb Road)	+	N/A	++	+	++	++	0	0	++	+	0
James Howe to Denton and Fairhaven	Create connector road from James Howe to Denton and Fairhaven	+	N/A	++	+	++	++	--	-	0	+	0
Bovard Avenue	Extend Bovard Avenue east to Oak Villa Road	+	N/A	++	+	++	++	0	0	++	+	0
Jasper Street	Extend Jasper Street north to city limits	+	N/A	++	+	++	++	0	0	++	+	0

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
River Drive	Extend River Drive north to city limits	+	N/A	++	+	++	++	0	0	++	+	0
SW Quadrant Residential	New collector west from Fairview to serve SW Quadrant	+	N/A	++	+	++	++	--	-	0	+	0
Connection to Mill	New collector east from Fairview to provide access to Mill	+	N/A	++	++	++	++	--	-	-	+	0
Connection from Mill	New collector from behind Mill east to Uglow	+	N/A	++	++	+	++	--	-	-	+	0
Fern Avenue	Extend Fern Avenue east to Kings Valley Highway	+	N/A	++	+	+	++	0	0	0	+	0
E Ellendale / Fir Villa Road	Added signal and second EBT and WBT	0	Y	0	++	++	0	+	0	++	+	0
E Ellendale / Oak Villa Rd	Added second EBT and WBT	0	Y	0	+	0	0	+	0	0	+	0
E Ellendale / LaCreole Drive	Added second EBT and WBT; exclusive NBL and made NBL lagging Prot/Perm	0	Y	0	+	++	0	+	0	++	++	0
E Ellendale / Polk Station Road	Added signal and second EBT and WBT	0	Y	0	+	++	0	+	0	++	+	0
Kings Valley Highway and Orchard Drive	Added signal and second EBL	0	Y	0	+	0	0	+	0	+	+	0
North Dallas Intersection	Added exclusive EBR, WBR, and SBR;	+	Y	0	+	0	0	+	0	+	+	0

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
	second EBT and WBT											
W Ellendale Avenue and Levens Street	Added signal and Protected/Permitted WBL	0	Y	0	0	0	0	+	0	0	+	0
W Ellendale Avenue / James Howe Road	Added exclusive SBL	0	Y	0	0	0	0	+	0	++	+	0
Mill Street / Main Street	Added signal and Permitted left-turns	0	Y	0	+	0	0	++	0	0	+	0
Mill Street / Jefferson Street	Added signal and Permitted left-turns	0	Y	0	+	0	0	++	0	0	+	0
Washington Street and Jefferson Street	Added signal; Protected EBL	+	Y	0	+	++	0	++	0	+	++	0
Miller Avenue and LaCreole Drive	Recommend monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Bicycle Improvements Evaluation

A list of possible bicycle facilities was developed considering the factors outlined below and then evaluated using the goals and evaluation criteria established as part of the TSP. The following factors were considered in developing the bicycle network:

- Connectivity – System connectivity, providing access from one bikeway corridor to the next, is important.

- Traffic volumes and travel speeds – Lower volume and lower speed roads are typically preferred by all cyclists; experienced cyclists may find higher volume and higher speed roads acceptable with dedicated facilities.
- Pavement condition – Bicyclists prefer smooth roadways for comfort and safety.
- Access to and from residential areas – Corridors that provide access from residential areas are preferred.
- Destinations served – Corridors that maximize the number of destinations served, such as schools, parks, employment centers, are preferred.
- Integration into the regional system – Connectivity to the regional bikeway system is preferred.
- Adjacent land use – Compatibility with adjacent land uses is important.
- On-street parking – Bicyclists prefer roads that minimize potential conflicts with parked vehicles.
- Existing opportunities such as planned roadway improvements – Integrating recommended bike facility improvements into planned roadway improvements is preferred.
- Routes with intersection protection and minimal delay – Bicyclists prefer corridors that minimize stopping requirements for the bicyclists while maximizing stopping requirements for conflicting vehicle traffic.

A bikeway network is a system of bicycle facilities that for a variety of reasons – safety, convenience, destinations served, attractiveness – provides a superior level of service for bicyclists. It is important to recognize that, by law, bicyclists are allowed on all streets and roads regardless of whether they are a part of the designated bikeway network. The bikeway network serves as a tool that allows the City to focus and prioritize bicycle facility implementation efforts where they will provide the greatest benefit to bicyclists and the community at large.

In general, local streets with fewer than 3,000 motor vehicles per day require no special bicycle improvements, although traffic calming may be recommended if volumes or speeds substantially increase. If local streets are designated as bicycle routes, they should be comprehensively signed so that the route is clear to the bicyclist without use of a map.

For streets with greater than 3,000 vehicles per day, the preferred treatment is bicycle lanes. In addition to providing dedicated facilities for bicyclists, bicycle lanes can also provide a traffic calming effect by visually narrowing the roadway width, providing education for motorists, and serving as a predictable line of travel for the bicyclist. Bicycle lanes also provide additional separation and safety for pedestrians. Where bicycle lanes cannot be included, the alternative treatments are traffic calming (chicanes, raised medians, raised intersections, etc.) or wider than normal outside lanes (14′ or greater). A wide outside lane should only be considered after other options have been pursued, such as narrowing or removing travel lanes or parking, as a wide outside encourages motor vehicles to speed and may ultimately reduce the safety of other roadway users. Where the appropriate bikeway and acceptable alternatives cannot be included in a project, bikeway facilities may be constructed on a nearby (within a quarter mile) parallel street.

There are numerous ways to implement the bikeways in this plan. Shared use paths typically involve developing an off-street corridor, while a bicycle boulevard involves development of a local street through traffic calming elements. For bicycle lanes, the City or State may widen a street, pave soft shoulders, reduce travel or parking lane widths, or removing travel or parking lanes in order to reallocate space. It is the city's discretion as to whether such projects' potential impacts, such as on-street parking removal or traffic congestion, are more harmful than the benefits gained from the bikeway. These circumstances will be carefully evaluated before a decision is made to implement an alternative treatment such as traffic calming improvements, a wider outside lane, or alternative parallel bikeway route. Guidelines for bikeway development are laid out in AASHTO's Guide to the Development of Bicycle Facilities (1999) and the ODOT Bicycle and Pedestrian Plan.

Table 5-7 displays the results of the evaluation process for bicycle facility projects.

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
Ellendale Avenue	Stripe bicycle lanes from western city limits to North Dallas Intersection	+	++	0	0	++	++	n/a	+	+	0	++	N
Dallas-Rickreall (223)	Stripe bicycle lanes from eastern city limits to North Dallas Intersection	+	++	0	0	++	+	n/a	0	++	0	-	N
Levens Street	Bicycle route from Ellendale to Academy Street	0	0	0	+	0	++	n/a	0	0	0	++	N
King's Valley Highway	Stripe bicycle lanes on both sides of roadway from Ellendale to	+	++	0	0	++	++	n/a	++	+	0	++	N

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
	Orchard; on north side of roadway from Orchard to city limits												
LaCreole Drive	Stripe bicycle lanes from Ellendale to Miller Avenue	+	++	0	0	++	+	n/a	++	+	0	++	N
Fir Villa Road	Stripe bicycle lanes or bikeway shoulder from Ellendale to Miller Avenue	+	++	0	0	++	+	n/a	0	++	0	-	Y
Miller Avenue	Stripe bicycle lanes on both sides of roadway from LaCreole to Fir Villa	+	++	0	0	++/+	+	n/a	+	+	0	+	N
Monmouth Cutoff Road / Uglow	Stripe bicycle lanes from Mill Street to city limits	++	++	0	0	++	+	n/a	0	+/++	0	-	Y
Washington Street	Bicycle route from Uglow Avenue to Main Street	0	0	0	+	0	++	n/a	0	0	0	++	N
Main Street	Stripe bicycle lanes from Ellendale to north of couplet	+	++	0	0	++	+	n/a	+	+	0	++	N
Main Street	Stripe bicycle lanes from Ellendale to Washington Street	+	++	0	0	++	++	n/a	++	+	0	++	N
Jefferson Street	Stripe bicycle lanes from Main Street to Washington Street	+	++	0	0	++	++	n/a	++	+	0	++	N
River Drive	Bicycle route from Ellendale to Mill Street	0	0	0	0	0	++	n/a	0	0	0	++	N

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
Orchard Drive	Bicycle route from King's Valley Highway to city limits	0	0	0	0	0	++	n/a	0	0	0	++	N
Polk Station Road	Stripe bicycle lanes from King's Valley Highway to Dallas-Rickreall	+	++	0	0	++	+	n/a	+	+	0	+	N
Hawthorne Avenue	Bicycle route from Dallas-Rickreall to Barberry Avenue	0	0	0	0	0	++	n/a	0	0	0	++	Y
Hankel Street	Stripe bicycle lanes from Hawthorne to Main Street	+	++	0	0	++	+	n/a	++	+	0	+	Y
Godsey Road	Stripe bicycle lanes from Miller Avenue to Monmouth Cut-Off	+	++	0	0	++	+	n/a	++	+	0	+	Y
Mill Street	Bicycle route from Uglow to River Drive	0	0	0	+	0	++	n/a	0	0	0	++	N
Washington Street and Fairview Avenue	Stripe bicycle lanes from Main Street to city limits	+	++	0	0	++	+	n/a	+	+	0	-	Y
Walnut Avenue	Comprehensively sign from Levens to LaCreole	0	0	0	++	0	++	n/a	0	0	0	++	N
Main Street	Sign from Washington to Ash	0	0	0	0	0	++	n/a	0	0	0	++	N
Jefferson Street	Sign from Washington to Ash	0	0	0	0	0	++	n/a	0	0	0	++	N

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
Hayter Street	Sign from Maple to Oakdale	0	0	0	++	0	++	n/a	0	0	0	++	N
Oakdale Avenue	Sign from Hayter to Fairview	0	0	0	0	0	++	n/a	0	0	0	++	N
Maple Street	Sign from Fairview to terminus of Maple	0	0	0	++	0	++	n/a	0	0	0	++	N

The recommended improvements for the City of Dallas TSP consist of a bikeway network that includes multi-use path segments, bicycle lanes, and bicycle routes that link residential neighborhoods, schools, parks, community centers, employment centers, commercial and retail areas, and provide regional connections. Section 7 contains a detailed description of the recommended bicycle network.

Pedestrian Improvements Evaluation

Sidewalks and safe crossing treatments are necessary for all streets in Dallas. Compliance with the American with Disabilities Act (ADA) is mandatory by Federal law. The City currently requires all public streets to have sidewalks and generally connectivity is good.

Pedestrian improvements by nature are highly localized and have been generalized into three types of improvements: new sidewalk construction, in-fill sidewalk construction and upgrades, and intersection improvements. The key necessary improvements are the provision of sidewalks and safe crossings, as well a system that is accessible by all pedestrians, including those with disabilities. Sidewalks preferably should be located on both sides of the street. Intersection treatments may include the following elements:

- Reducing crossing distance;
- Reducing automobile speeds at crossings;

- Providing as straightforward and obvious a crossing path as possible;
- Ensuring disabled access at curb cuts and medians;
- Providing well marked crosswalks and accessible push buttons; and
- Ensuring sight distance and safety.

Other treatments that enhance pedestrian travel include sidewalk amenities like street trees and other landscaping, benches, bus shelters, guide signing, and street lighting. These sidewalk amenities can contribute to the character of the community as well as provide safe and inviting places for people to walk. Multi-use paths also complement a comprehensive sidewalk system, allowing people to travel through the community in a traffic-free environment.

Table 5-8 displays the results of the evaluation process for bicycle facility projects.

TABLE 5-8
Evaluation of Pedestrian Facility Projects

		Multi-Modal Transportation System	Mobility	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Cost	Accessibility	Part of a future roadway or development project?
Ellendale Avenue	Construct new sidewalk on south side from Wyatt to River Drive	+	+	0	0	++	+	n/a	+	+	0	+	+	Y
King's Valley Highway	Construct new sidewalk on south side of roadway from Walmart to Polk Station Road; on north side of roadway from 100' east of Dallas Drive to Polk Station Road	+	++	0	0	++	+	n/a	+	+	0	0	+	N
North Dallas - King's Valley	Construct new sidewalk on south side of roadway from North Dallas intersection to Wal-Mart	++	++	0	0	++	+	n/a	+	+	0	+	++	N

TABLE 5-8
Evaluation of Pedestrian Facility Projects

Miller Road	Construct new sidewalk from just east of LaCreole to just west of Fir Villa	+	++	0	0	+	+	n/a	+	+	0	+	++	N
Godsey Road	Construct new sidewalks from Monmouth Cut-Off to Miller Avenue	+	++	0	0	++	+	n/a	+	+	0	-	+	Y
Maple Street	Construct new sidewalk from Lyle to Uglow on south side of roadway	+	++	0	0	+	+	n/a	0	0	0	++	0	N
Levens Street	Widen and improve sidewalk condition, particularly in front of school from Ellendale to Rickreall Creek	++	+	0	0	+	+	n/a	++	+	+	+	++	N
Mill Street	Improve sidewalk condition between Jefferson and Uglow, make curb ramps ADA accessible, fill in missing segments	+	+	+	0	+	+	n/a	+	+	0	+	++	Y
~~Uglow Avenue~~	~~In-fill sidewalk segments between Ash Street and railroad tracks~~													
New Collectors and Arterials	Construct new sidewalk on future collectors and arterials													
Fairview Avenue	In-fill sidewalk segment between Clay and Maple Street, upgrade curb ramps	+	+	0	0	++	+	n/a	++	+	0	++	+	N
River Drive	Construct new sidewalk over Rickreall Creek from River Dr to Mill St	+	++	0	0	++	+	n/a	+	+	+	-	++	Y
Dallas-Rickreall Highway (223)	Construct new sidewalks from LaCreole to Fir Villa	+	+	0	0	++	+	n/a	+	+	0	--	+	Y
Fir Villa Road	Construct new sidewalks from Dallas-Rickreall to existing sidewalk	+	++	+	0	++	+	n/a	+	+	0	-	+	Y
Fairview Avenue	Construct new sidewalks from Oakdale Road to Bridlewood Drive	+	+	0	0	++	+	n/a	--	+	0	-	+	N
Ellendale Avenue	Construct new sidewalk on north side of roadway from Wyatt to city limits	+	++	+	0	++	+	n/a	+	0	0	0	+	Y
Ellendale Avenue	Widen sidewalk between LaCreole and Levens, possible buffering with	++	+	+	0	+	+	n/a	++	+	0	-	+	N

TABLE 5-8
Evaluation of Pedestrian Facility Projects

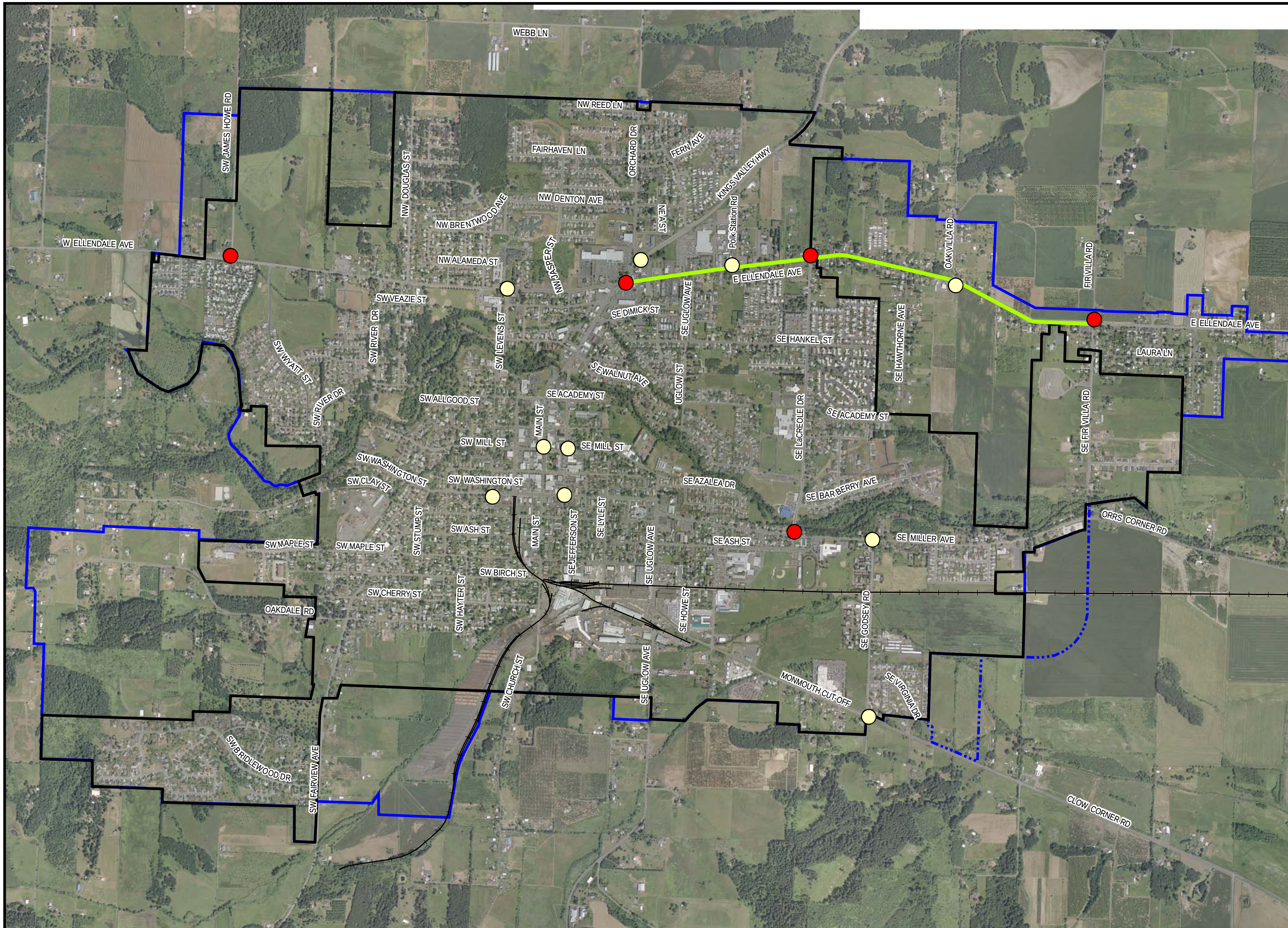
	landscaping													
LaCreole Drive	In-fill sidewalk segment on east side of roadway between Walnut and Barberry	+	++	0	0	+	+	n/a	0	0	0	++	+	N
Monmouth Cutoff Road / Uglow Avenue	Construct new sidewalks on Monmouth Cut-Off from Maple Street to Godsey Road	+	++	0	0	++	+	n/a	+	+	0	+	+	Y
River Drive	Construct sidewalks on both side of road if roadway is connected to Mill	+	+	0	0	+	+	n/a	+	+	0	-	+	Y
Levens and Ellendale	Improve pedestrian safety with various treatments, including raised medians (pork chops), marked crosswalks, illumination	+	+	0	0	+	+	n/a	++	+	0	++	++	N
Levens and Walnut	Improve pedestrian safety with various treatments, including marked crosswalk, warning signage, illumination, curb extensions	+	+	0	0	+	+	n/a	++	+	0	++	++	N
~~North Dallas Intersection~~	~~Improve pedestrian safety with various treatments, including raised medians (pork chops) and upgraded curb ramps~~													
Dallas Drive and King's Valley Highway	Improve pedestrian safety with raised median, marked crosswalk, illumination, and warning signs	+	+	0	0	+	+	n/a	+	+	0	++	+	N
LaCreole and Miller	Improve pedestrian safety by signalizing intersection, marking crosswalks, and installing pedestrian signal heads	+	+	0	0	+	+	n/a	++	+	0	-	++	Y
Ash and Uglow	Improve pedestrian and bicyclist safety with marked crosswalks, curb extensions, and warning signage	+	+	0	0	+	+	n/a	++	+	0	++	++	?

TABLE 5-8
Evaluation of Pedestrian Facility Projects

Maple and Fairview	Improve pedestrian and bicyclist safety with marked crosswalks, curb extensions and warning signage	+	+	0	0	+	+	n/a	++	+	0	++	++	N

The recommended pedestrian network is composed of a mixture of sidewalk in-fill, intersection improvements and new sidewalk construction projects. These are described in Section 7, Modal Plans.

Insert Figures 5-1 through 5-5



Dallas TSP

Potential Roadway Transportation System Improvements

Figure 5-1: Alternative 1 Added Capacity

Dallas, OR

Legend

- Alternative Improvements
- Intersection Meets Design Mobility Standard with Local Intersection Improvements
- Intersection Fails to Meet Design Mobility Standard with Local Intersection Improvements
- Rail Road
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

0 1,000 2,000 Feet

CH2MHILL

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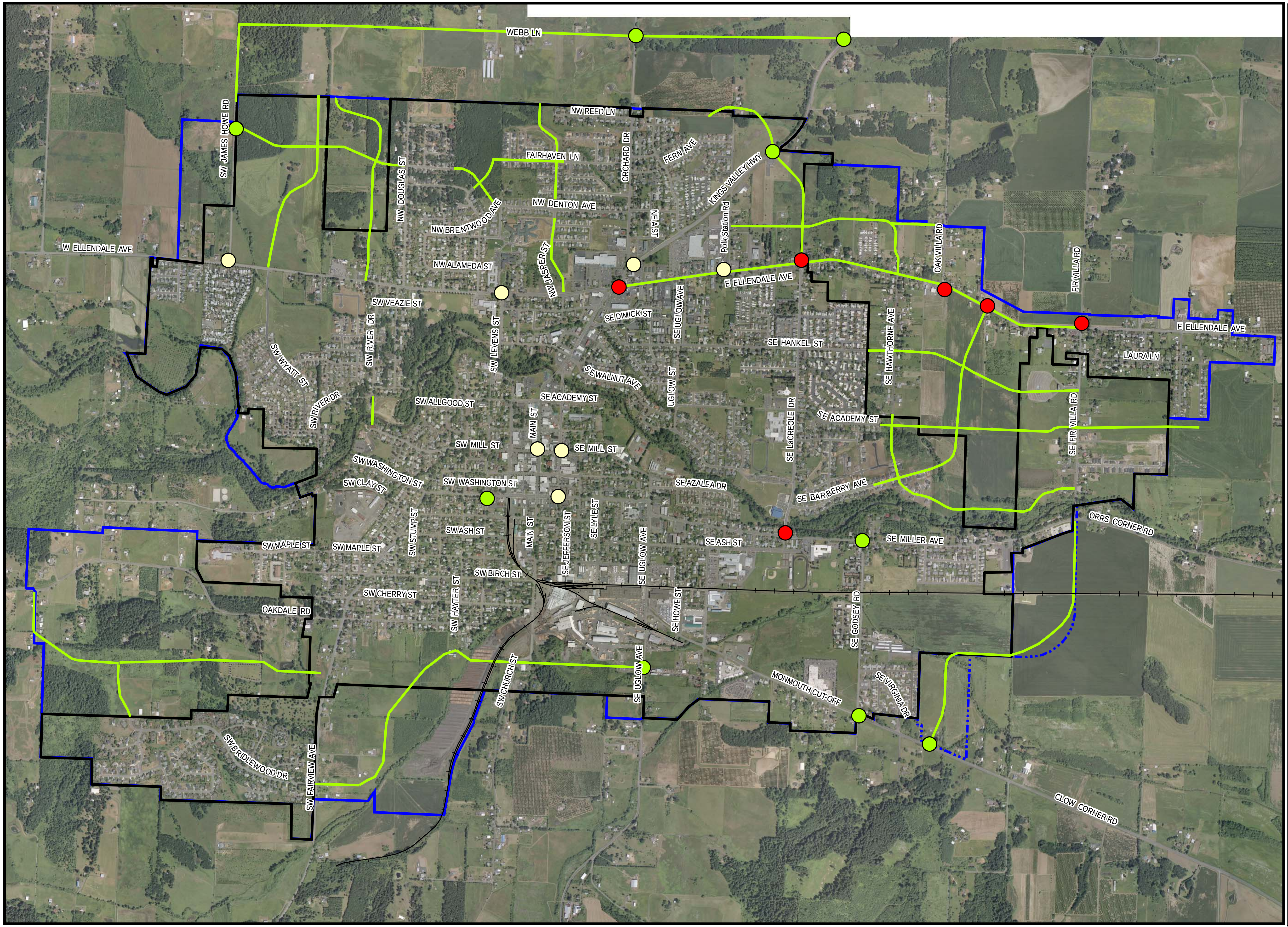

Dallas TSP

Potential Roadway Transportation System Improvements

Figure 5-2: Alternative 2 Added Connectivity

Dallas, OR

Legend

- Alternative Improvements
- Rail Road
- Intersection Meets Design Mobility Standard After Roadway Improvements. No Local Intersection Improvements Needed
- Intersection Meets Design Mobility Standard with Local Intersection Improvements
- Intersection Fails to Meet Design Mobility Standard with Local Intersection Improvements
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

0 1,000 2,000 Feet

CH2MHILL

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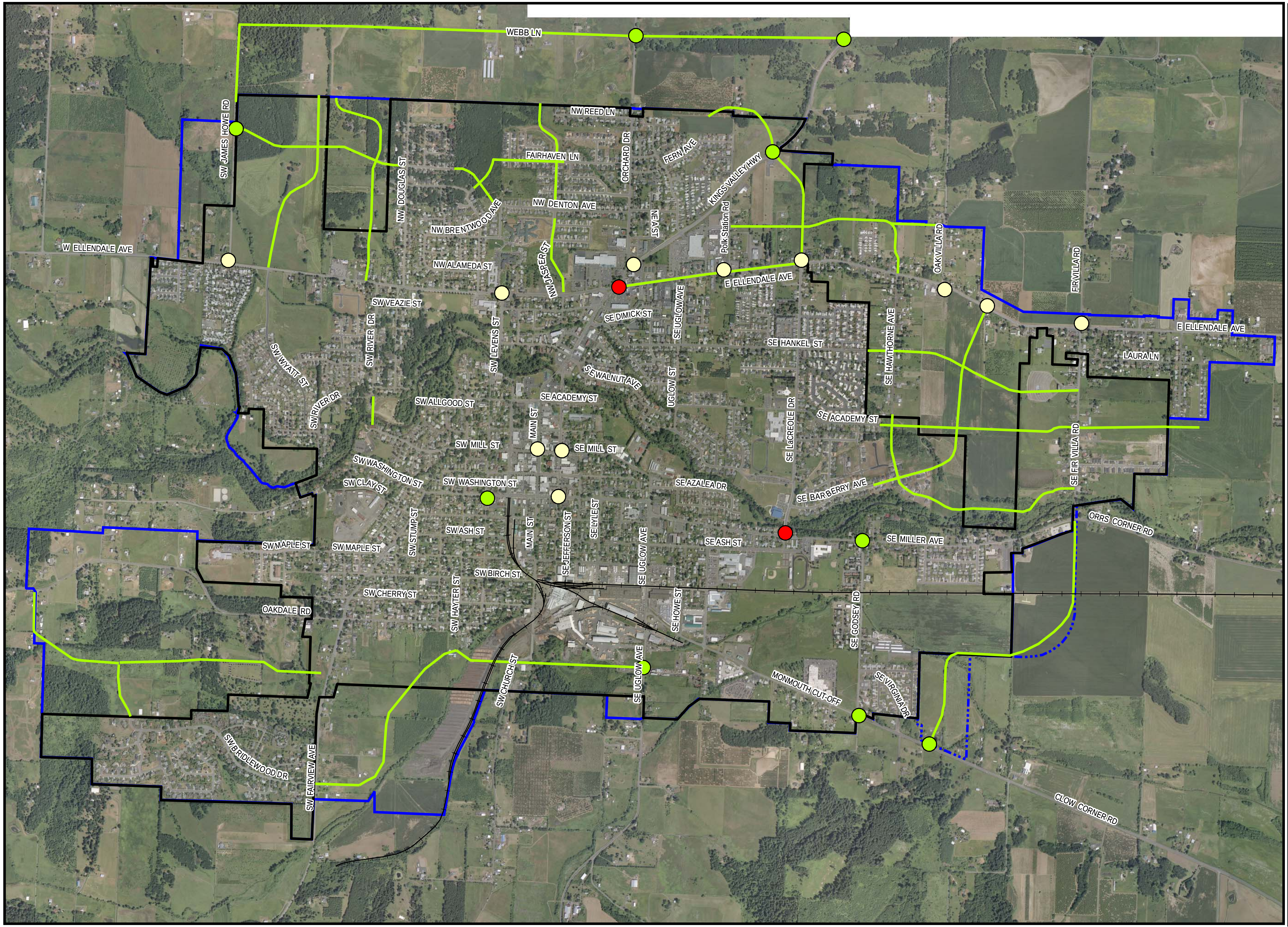


Dallas TSP

Potential Roadway Transportation System Improvements

Figure 5-3: Alternative 2A Added Connectivity with Additional Intersection Capacity along Dallas Rickreall

Dallas, OR

Legend

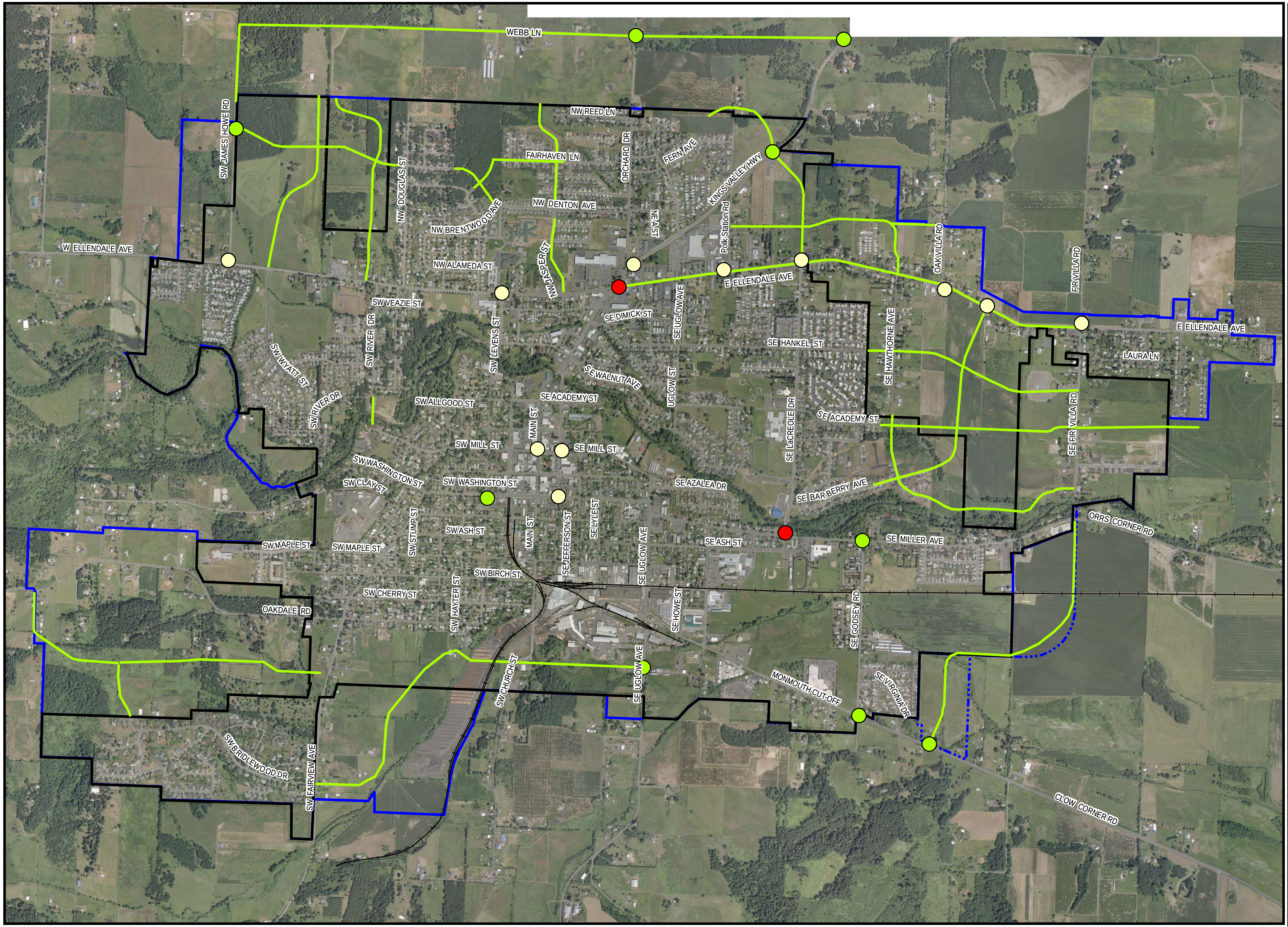
- Alternative Improvements
- Rail Road
- Intersection Meets Design Mobility Standard After Roadway Improvements. No Local Intersection Improvements Needed
- Intersection Meets Design Mobility Standard with Local Intersection Improvements
- Intersection Fails to Meet Design Mobility Standard with Local Intersection Improvements
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

0 1,000 2,000 Feet

CH2MHILL

File Path: \\rosa\proj\ODOT\316929\GIS\MapDocuments\tsp_final\Road_Capacity&Improvements\Figure5-3Alternative_2A_added Capacity.mxd, Date: June 24, 2005 9:01:44 AM



Dallas TSP

Potential Roadway Transportation System Improvements

Figure 5-4: Alternative 3 Capacity - Connectivity Hybrid

Dallas, OR

Legend

- Alternative Improvements
- Rail Road
- Intersection Meets Design Mobility Standard After Roadway Improvements. No Local Intersection Improvements Needed
- Intersection Meets Design Mobility Standard with Local Intersection Improvements
- Intersection Fails to Meet Design Mobility Standard with Local Intersection Improvements
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

0 1,000 2,000 Feet

CH2MHILL

File Path: \\rosa\proj\ODOT\316929\GIS\MapDocuments\tsp_final\Road_Capacity&Improvements\Figure5-4Alternative_3_added Capacity.mxd, Date: June 24, 2005 12:29:39 PM

SECTION 6

Access Management

The objective of Access Management Plans (AMPs) in Oregon is to improve safety along state highways. Potential conflict occurs at each access point to the highway. As vehicles enter or exit, they potentially conflict with other vehicles, bicyclists, or pedestrians traveling along the highway. Reducing the number of conflict points, or redesigning accesses so that specific entry/exit areas are clear, is expected to improve safety while also improving travel time reliability, reducing overall travel time, and promoting economic development.

AMPs are balanced by the following elements:

- Supply access to public and private properties, while preserving safety and efficiency for users of the highway.
- Provide a balance between access and through traffic movement.
- Recognize the highway system as a key link between people, goods and services.
- Limit the number of potential conflict points.

The City of Dallas has demonstrated its commitment to access management through the development of access management techniques for the city street network, through coordination with ODOT on access management strategies in the vicinity of the north Dallas intersection, and through the creation of a specific goal (Goal 7) addressing access management for the Dallas TSP.

This section describes the Access Management Standards addressed in the OHP and OAR 734-051, and identifies the relevant access spacing standards for the Dallas Rickreall Highway and the Kings Valley Highway within the Dallas UGB. Current access conditions off these two state highways are then compared with these standards and general strategies are identified to manage access along the two state highways. These general strategies would be employed in the future, where opportunities are created as a result of redevelopment, changes in use, and roadway improvement projects.

State Policies

The relevant access management policies for the two state highways in Dallas are described in the OHP and OAR 734-051 (Division 51). These two documents are described below.

The OHP defines the policies and investment strategies for Oregon's state highway system over a 20-year planning horizon. Appendix D of the OHP classifies all state highways by milepoint, including interstate, statewide, regional, and district highways and local interest roads. Amendments to the OHP specify whether a highway has been designated as a Special Transportation Area (STA), Urban Business Area (UBA), or a Commercial Center. Access spacing standards differ depending on these highway classifications and special designations, as well as the speed of the highway, its location in an urban or rural area, and whether the highway is designated as an "expressway."

OAR 734-051 "Division 51" rules promote the protection of emerging development areas. The rules provide access management spacing standards for approaches to various types of state highways. Tables 2-8 of the Division 51 guidelines provide access spacing standards for state highways, dependent on highway classification, location (rural vs. urban), and designation as an expressway, STA, or UBA.

Both state highways within the study area are classified as District Highways. District Highways operate as county arterials. The management objective for District Highways is to provide for safe and efficient, moderate to high-speed continuous-flow operation in rural areas, and low to moderate speed operation in urban and urbanizing areas. Neither highway is classified as an expressway. Because the study area boundary is the Dallas UGB, the relevant spacing standards are for urban areas.

The segment of the Kings Valley Highway along Main Street and Jefferson Street in downtown Dallas, between Academy Street and Washington Street, has been designated as a STA. According to the OHP, STAs are typically designated on highways along downtown areas where through traffic shares importance with local auto, bicycle, pedestrian, and transit traffic. The primary management objective of highways within an STA is to provide access to community facilities and accommodate pedestrian movement along and across the highway.

The City of Dallas has requested that ODOT expand the STA designation on its north end from Academy Street to Walnut Avenue, and west along Washington Street from Jefferson Street to Levens Street. The STA boundaries have been extended for the purpose of this access management discussion.

The section of Kings Valley Highway and Dallas Rickreall Highway in the vicinity of the north Dallas intersection is being considered for UBA status. The OHP states that UBAs are located in areas of existing commercial activity where speeds are relatively low (35 MPH or less), and the need for local access is greater than the need for mobility. Future UBA status is assumed for this highway segment.

Relevant access spacing standards for the study area are listed in Table 6-1. The standards are illustrated graphically for the study area in Figure 6-1.

TABLE 6-1
Relevant Access Spacing Standards for State Highways within Dallas

Speed	Urban Non-Expressway (feet)	Urban UBA (feet)	Urban STA (feet)
≥ 55 MPH	700		
40 & 45 MPH	500		
≤ 35 MPH	400	350	175*

NOTE: From OAR 734-051, Table 4, Access Management Spacing Standards for Private and Public Approaches on District Highways. The state highways within the study area are considered "Urban."

* Urban STA spacing is 175 feet or mid-block if the current block spacing is less than 350 feet (OAR 734-051,

TABLE 6-1
Relevant Access Spacing Standards for State Highways within Dallas

Speed	Urban Non-Expressway (feet)	Urban UBA (feet)	Urban STA (feet)
Table 4, Note 6).			

It is important to note that these spacing standards do not retroactively apply to legal roadways and accesses that were in place prior to the adoption of the policies. Rather, they apply to situations of redevelopment or change in use, roadway improvement projects, and new access points.

Summary of Existing Spacing

Figure 6-2 presents an overview of existing driveway access locations along the Dallas Rickreall and Kings Valley highways in comparison to ODOT access spacing standards. Overall, most segments of the study area have more closely-spaced driveways than considered ideal for a District Highway. Three exceptions to this finding are along Dallas Rickreall immediately west of Fir Villa Road, Kings Valley Highway north of the north Dallas intersection, and along parts of the downtown couplet.

This analysis does not call for compliance with ODOT spacing standards, but rather describes the current land uses along the state highways and identifies possible areas for opportunity for compliance in the future, as sites redevelop or roadway improvement projects are constructed.

Access Analysis

The study area was split into segments for access analysis. The boundaries for each segment were chosen because they represented some logical topographical or land use transition point. The highway segments analyzed are listed in Table 6-2:

TABLE 6-2
Segments for Access Management Analysis

Segment	Road	Segment Start	Segment End	Corresponding Figures
Dallas Rickreall Highway				
1	E Ellendale Avenue	Fir Villa Road	LaCreole Drive	6-3 to 6-6
2	E Ellendale Avenue	LaCreole Drive	Kings Valley Highway	6-7 to 6-8
Kings Valley Highway				
3	Kings Valley Highway	Northern Edge of Urban Growth Boundary (1/3 mile north of Polk Station Road)	Dallas Rickreall Highway	6-9-6-10
4	Main Street	Dallas Rickreall Highway	Rickreall Creek (northern	6-11

TABLE 6-2
Segments for Access Management Analysis

Segment	Road	Segment Start	Segment End	Corresponding Figures
			edge of couplet)	
5a	Main Street	Rickreall Creek	Washington Street	6-12
5b	Jefferson Street	Washington Street	Rickreall Creek	6-12
6	Washington Street	Jefferson Street	Fairview Avenue	6-13
7	Fairview Avenue	Washington Street	Oakdale Avenue	6-14
8	Fairview Avenue	Oakdale Avenue	Bridlewood Drive	6-15 to 6-16

Figures 6-3 to 6-15 display the current driveway locations and land uses for each of the identified segments at a 1″ = 200′ scale. Segments where existing driveways are more closely spaced than highway spacing standards have been flagged.

Dallas-Rickreall Highway

Dallas-Rickreall Highway is a 4.4 mile District highway that links OR 22 with the City of Dallas. The highway enters Dallas from the east and terminates at its intersection with the Kings Valley Highway (the north Dallas intersection). Approximately two miles of the highway are within the Dallas Urban Growth Boundary. The 2002 and five-year (1998-2002) segment crash rate for this highway is 2.73 crashes/MEV. This is higher than the statewide average of 2.47 crashes/MEV. There were 54 crashes during the period of 1998-2002, 26 of which resulted in an injury. The segment of E Ellendale Road between MP 0.16 and 0.28 is included in the 2004 SPIS Report of top 10 percent SPIS sites.

Where relevant, crash rates for specific study intersections are listed in the next sections.

This access management discussion analyzes accesses along the section of the Dallas-Rickreall Highway (called E Ellendale Road) within the UGB. It has been divided into two segments. The eastern segment looks at E Ellendale Road between the UGB and LaCreole Drive. The western segment looks at E Ellendale Road between LaCreole Drive and the north Dallas intersection.

Segment 1: E Ellendale Road between UGB and LaCreole Drive

This segment of E Ellendale is a two-lane highway. Land uses transition from rural at the eastern end to a suburban residential environment in the vicinity of LaCreole. The highway in this section has two travel lanes and shoulder of variable width. There is a left-turn pocket and flashing signal at Fir Villa Road. No sidewalks or bike lanes exist in this section. Current ADT is 12,600 vehicles/day; this is expected to increase to 31,600 vehicles/day by the year 2025.

Roads in this section include:

- Fir Villa Road is a minor arterial south of E Ellendale, connecting with Miller Avenue to the south. North of E Ellendale, Fir Villa Road is a local road that continues north of city limits to connect with the Kings Valley Highway.
- Oak Villa accesses off the Dallas Rickreall Highway to the north only, as a major collector south of the UGB and as a local/county road north of the UGB. Oak Villa Road connects the Dallas Rickreall and Kings Valley Highways.
- Hawthorne Avenue is a collector road to the south of the Dallas Rickreall Highway. Currently the road dead ends but this TSP recommends a project to extend Hawthorne to the south to connect with Barberry Avenue.
- In addition, the City plans to construct a new collector road, Barberry Avenue, to the highway in this segment. This TSP describes the extension of Barberry road in a north-east direction to connect with the highway between Hawthorne and Fir Villa.

Figures 7-3 through 7-6 illustrate the existing driveway accesses along this highway segment. There are 48 driveways along E Ellendale on the north side of the highway. Existing land uses along the north side of the highway are:

- Single-family homes
- Faith Christian School
- Faith Evangelical Free Church
- Fields and farmland
- Polk Veterinary Clinic and Boarding
- Mobile Home Park (one driveway leading to approximately 25 mobile homes)

There are 69 driveway access points onto E Ellendale on the south side of the highway. Some of the specific land uses in this segment are:

- Single-family homes
- Car Shop Auto Repair
- Dallas Glass and Window
- Harry Lyda Realty
- La Campiana Restaurant
- Ed Sims Roofing
- Grace Baptist Church
- Dallas Animal Clinic

Several of the single-family homes along this segment have circular driveways, with two separate accesses per parcel onto the highway. Several businesses on the south side of the highway have multiple driveways. Driveway consolidation could be an effective access management tool for both business and residential parcels along this segment.

Several of the parcels in this section have been identified as underutilized[6] residential-zoned land. If redevelopment occurs on these parcels, the City will have an opportunity to incorporate access management measures.

Segment 2: E Ellendale Road between LaCreole Drive and Kings Valley Highway

Between LaCreole Drive and the north Dallas intersection the nature of East Ellendale transitions from residential to commercial. This highway segment has two travel lanes with curb, gutter, and sidewalk, with a two-way center-turn lane between the north Dallas intersection and Polk Station Road. There is a traffic signal and a left-turn pocket at LaCreole Drive. Current ADT for this segment is 15,400 vehicles/day; this is expected to increase to 35,400 vehicles/day by the year 2025. The section between Polk Station Road and Kings Valley Highway is being considered for UBA status.

Roads in this section include:

- LaCreole Drive is a collector road that connects E Ellendale with Miller Avenue to the south. This TSP recommends an extension of LaCreole Drive to the north to serve the LaCreole mixed-use node. A total of eight crashes were recorded in the 1998-2002 study period, a crash rate of 0.55 crashes/MEV.
- Polk Station Road is a minor arterial that connects the two study area highways. This road is slightly more than ¼ mile in length, and provides access to major commercial, including Wal-Mart. The five-year crash rate for this intersection is 0.25 crashes/MEV.
- Uglow Avenue is a local road with access to the Dallas Rickreall Highway from the south. Uglow transitions to a minor collector south of Hankel and ends at Walnut Avenue, just north of the Rickreall Creek. Uglow picks up again south of the creek but there is no bridge connecting the two Uglow streets. The intersection of Dallas Rickreall and Uglow Avenue is part of a segment listed in the top 10% SPIS sites for the 2004 SPIS report.
- The study area highways intersect at the western end of this segment. This intersection is referred to as the north Dallas intersection. A major improvement project is underway at this location, as discussed below. The 5-year crash rate for this intersection is 0.27 crashes/MEV.

This segment, only ¼-mile in length, has 27 separate accesses on the north (approximately one driveway every 50 feet). Figures 7-7 and 7-8 illustrate the location of existing driveway accesses. Some of the land uses on the north side of the highway include:

- Single-Family and Multi-Family Residential
- Grace Community Church
- Department of Motor Vehicles
- Windermere/Western View Properties

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[6] The City of Dallas Comprehensive Plan defines underutilized land as all parcels larger than 0.75 acres with a single-family residence, with 0.5 acres subtracted to account for the residence, regardless of zoning district.

- Wal-Mart Truck Entrance
- Burger King
- Wells Fargo
- Gas Station/HT Storage Facility
- Exxon Station

There are 26 access locations on the south side of the Dallas Rickreall Highway in this section. Some of the specific land uses include:

- Napa Auto Parts
- McDonalds
- Ellendale Plaza (multiple businesses with one main access)
- Taco Time
- Single-Family and Multi-Family Residential

This segment displays less opportunity for driveway consolidation as many parcels currently contain only one access. However, certain businesses have multiple driveways and consolidation could be pursued. Furthermore, many businesses are immediately adjacent but have separate driveways. Some of these separate accesses could be combined in the future using shared driveways and cross-over easements.

ODOT and the City of Dallas prepared an AMP for the western part of this segment as part of a project that is underway to realign and widen the north Dallas intersection. As part of this project, one driveway in this segment will be closed – this driveway is one of two accesses to the vacant gas station/HT storage facility on the north side of the highway.

Kings Valley Highway

Kings Valley Highway is a District highway that links OR 22 with OR 20. It enters the City from the north and runs through the center of downtown. At different locations, the Kings Valley Highway is referred to as Main Street, Jefferson Street, Washington Street, and Fairview Avenue. Approximately 3.1 miles of the highway are within the Dallas UGB. Speeds vary between 55 miles per hour north of Polk Station Road and 20 miles per hour in the downtown couplet. A total of 121 crashes occurred inside the study area on the Kings Valley Highway during the 1998-2002 time period. The segment crash rate for the highway was 2.73 crashes/MEV – this is slightly higher than the statewide five-year crash rate of 2.47 crashes/MEV. Where applicable, intersection-specific crash rates are listed below.

As mentioned in the previous section, a project is underway to modernize the north Dallas intersection, including a realignment and added capacity.

Segment 3: Kings Valley Highway between UGB and Ellendale Avenue

Kings Valley Highway through much of this segment is a two-lane highway with shoulders. Between the north Dallas intersection and Dallas Drive, there is a two-way center turn lane, and left-turn pockets at the Wal-Mart shopping center entrance / Dallas Drive. Sidewalks exist on the west side of the highway between the north Dallas intersection and north of Dallas Drive, though one section immediately north of Orchard Drive is missing. On the east side of the highway, sidewalks exist in the immediate vicinity of the Wal-Mart frontage, but do not exist for other locations in the segment. There is a striped bicycle lane on the east side of the highway between the shopping center and Wal-Mart. Current ADT for this segment is 6,200 vehicles/day; this is expected to increase to 14,300 vehicles/day by the year 2025. The portion of this segment between Polk Station Road and the Dallas-Rickreall Highway is being considered for UBA status.

Roads in this section include:

- Polk Station Road is a minor arterial. Access is provided on the south side of the Kings Valley Highway, connecting with Dallas Rickreall Highway. On the north side of Kings Valley Highway, Polk Station Road continues for less than 1,000 feet before terminating. The five-year crash rate for this intersection is 0.20 crashes/MEV.
- Dallas Drive is a collector road accessing Kings Valley Highway from the north. The access location is directly across from the main Wal-Mart entrance. The road provides access to a number of residents, and terminates at the north end of the City.
- Orchard Drive is a minor arterial accessing the highway from the north only. It provides access to several commercial businesses at its south end, and to area residents north of Brentwood. The crash rate for this intersection is 0.11 crashes/MEV.

Between Polk Station Road and the UGB, the predominant land use is rural field (see Figures 7-9 and 7-10). The area transitions into commercial in the vicinity of Orchard Drive. There are eight access points on the west side of Kings Valley Highway between the UGB and Ellendale Avenue. Two of these approaches are for public roads (Dallas Drive and Orchard Drive), and four are between Orchard Drive and the north Dallas intersection (a spacing of less than 400 feet).

Selected land uses on the west side of the highway include:

- Rural residential
- Safeway parking lot (side entrance, one access)
- Bert's Restaurant parking lot (two accesses)

There are eight accesses also on the east side of the highway in this section. Selected land uses on the east side of the highway are listed below. Many of these access points are clustered around the north Dallas intersection:

- Exxon gas station
- Shopping Center (entrance only)
- Wal-Mart main entry
- Dallas Church of the Nazarene

Access management strategies for this segment include driveway consolidation (the Bert's Restaurant parking lot and Exxon both have two driveways) and driveway sharing (the Safeway parking lot is directly adjacent to Bert's Restaurant). Additionally, access directly adjacent to Orchard Drive and Polk Station Road could be rerouted off the highway onto these local collector roads. The AMP completed for the north Dallas intersection project lists the closure of four driveways in this study segment, including:

- Shopping Center (entrance-only) – close one access
- Safeway/Berts – combine existing three accesses into one shared (closing two accesses)
- Exxon Gas – close one access

There are a handful of parcels in this section which are identified as either underutilized or vacant commercial or residential land. As these parcels develop or redevelop, the City will have an opportunity to incorporate access management measures. The greatest opportunity for this segment is for access to be provided via local collector streets, or to share driveway access with adjacent businesses.

Segment 4: Main Street between Ellendale Avenue and North End of Couplet

This segment of Kings Valley Highway, referred to as Main Street, runs between the north Dallas intersection and the north end of the downtown couplet. Figure 6-11 displays driveway locations. The segment is a two lane roadway with sidewalks and a bi-directional center turn lane. On-street parking is allowed but appears to be underutilized. The southern end of this segment is a school zone. A traffic signal was recently installed at the intersection of Main and Walnut. ADT in this section is currently 15,600 vehicles/day, and is anticipated to increase to 28,000 vehicles/day by 2025. The portion of this segment between Ellendale Avenue and Walnut Avenue is being considered for UBA status, and the portion of the segment south of Walnut Avenue is being considered for STA status.

Three streets connect to the highway:

- Rainbow Avenue is a local road connecting to Main Street from the west. The street provides access to residential areas west of Main Street.
- Hankel Street is a collector street connecting to Main Street from the east. Currently Hankel Street terminates approximately 450 feet west of Hawthorne, but the TSP recommends extending Hankel east to Fir Villa Road as part of the Barberry Node development.
- Walnut Avenue is a local street that runs along the north side of the Rickreall Creek between LaCreole and Levens. The five-year crash rate at this intersection is 0.50 crashes/MEV.

There are 14 driveways on the west side of the highway (approximately one driveway every 125 feet). Land uses include:

- Les Schwab Tire Center (two accesses)
- Thrifty Market (secondary access – primary access is on Rainbow Avenue)

- Kliever's Abbey Carpet and Flooring (two accesses)
- Hong Kong Restaurant
- Single-Family Residential
- Nanyang Restaurant
- Arctic Circle (three accesses)

The AMP completed for the north Dallas intersection project closes three accesses in this study segment, including:

- Les Schwab – close two accesses
- Thrifty Mart – close one access (access provided via Rainbow Street)

In addition, another AMP is being developed for the vicinity of Main Street and Walnut Avenue, where a new signal has been installed. As part of this AMP, access to the Nanyang Restaurant from Main Street would be removed, with access provided along Walnut Avenue.

On the east side of the highway there are 11 access points (approximately one driveway every 150 feet). Some access management techniques have been employed along this side of the highway. Close to the north Dallas intersection, one primary access is provided off the highway leading to Figaros Pizza and Subway, with full curb, gutter, and sidewalk treatment. As part of the Main Street / Walnut Avenue intersection project, one driveway leading to the Fuel/Food Mart will be removed. For the Starlite Lanes, primary access appears to have been moved to Walnut Avenue, removing access to the highway.

Selected land uses include:

- Fuel/Food Mart
- Dick's Auto Center (two driveways)
- Starlite Lanes Bowling Alley (vehicle entry from Walnut Avenue)
- Carquest Auto Parts (two driveways)
- Spray Shining
- Main Plaza Strip Retail (one driveway, multiple businesses)
- Figaros/Subway Plaza (one driveway leading to multiple businesses)

Possible access management techniques relevant to this segment include relocating additional accesses from the state highway onto local collector streets and driveway consolidation (where relevant and feasible). Access management strategies appear to already have been adopted for driveways on the east side of Kings Valley Highway near the north Dallas intersection, where multiple businesses share a parking area and one driveway.

Segment 5: Downtown Couplet

The downtown couplet runs through downtown Dallas between the Rickreall Creek and Washington Street. See Figure 6-12. Main Street runs in the southbound direction and Jefferson in the northbound direction. The segment of the couplet between Academy Street and Washington Street has been designated as a STA. The portion of the segment north of Academy Street, on both Main Street and Jefferson Street, is being considered for STA status.

One segment of the downtown couplet, Jefferson Street between MP 3.07 and 3.16, is included in the 2004 SPIS Report as a top 10 percent SPIS site. Two intersections are included in this segment – Oak Street and Academy Street.

At the north end of the couplet, immediately north of Rickreall Creek, is an island that separates the northbound and southbound traffic to two separate bridge structures over the creek. Northbound traffic in the left lane is allowed to make a U-turn at the island.

Roads accessing the highway in this segment include:

- Academy Street is a collector road that extends to Hayter Street to the west and approximately 650 feet of Jefferson Street to the east. The intersection of Jefferson Street and Academy Street is included in the segment listed in the 2004 top 10 percent SPIS site.
- Oak Street is a local road that extends to Levens Street to the west and approximately 650 feet of Jefferson Street to the east. The intersection of Jefferson Street and Oak Street is included in the segment listed in the 2004 top 10 percent SPIS site.
- Mill Street is a collector road that extends westward to the St. Phillip Catholic Church near the Rickreall Creek, and eastward to become Uglow Street. The five-year crash rate for both the intersection of Mill and Main and Mill and Jefferson is 0.55 crashes/MEV.
- Court Street is a local road that extends westward to become Ellis Street, and eastward approximately 200 feet beyond Lewis Street.

Segment 5A: Main Street between North End of Couplet and Washington Street

There are very few direct driveway access points within the couplet. This is mainly due to the short block length (typically 325 feet) and the period of development – several of the downtown structures predate automobile travel, are densely developed, and are oriented towards higher pedestrian traffic. The segment contains two wide travel lanes, on-street parallel parking, and wide sidewalks. There are no bicycle facilities. A traffic signal is located at Washington and Main. Most street intersections contain curb extensions to reduce pedestrian crossing widths. ADT in this segment is currently 7,700 vehicles/day. This is expected to increase to 12,400 vehicles/day by the year 2025.

On the west side of Main Street there are 12 accesses off the highway, 10 of which are located north of Mill Street. Between Mill and Washington access is predominantly provided via local side streets or on-street parking. Land uses on the west side of Main Street include:

- Riverside Inn (two driveways)

- Academy Building
- Washington Federal Savings Bank
- Dallas Select Market
- Bank of America

On the east side of Main Street, there are 12 driveways, predominantly north of Mill Street. Land uses include:

- Place Restaurant
- Wells Fargo
- Dominos Pizza
- Polk County
- La Herradura Restaurant

Further access management in the downtown couplet is limited to the area north of Mill Street. Driveway consolidation is a potential technique for the few businesses with multiple driveways. To reduce conflicts in this area, signage prohibiting left turns or through movements during certain times of the day could be employed.

Segment 5B: Jefferson Street between Washington Street and North End of Couplet

Kings Valley Highway runs along Jefferson Street in the northbound direction between Washington and the Rickreall Creek, where it merges with Main Street and becomes two-directional. Similarly to Main Street, this segment contains two wide travel lanes, on-street parallel parking, and sidewalks. No dedicated facilities exist for bicycles. Most street intersections contain curb extensions to reduce pedestrian crossing widths. At the north end of Jefferson Street is an island where the left-hand lane leads into a U-turn, allowing drivers to turn southbound onto Main Street. Current ADT is 6,000 vehicles/day. This is expected to increase to 9,700 vehicles/day by the year 2025.

There are 18 direct driveways off the highway on the east side of Jefferson Street. In addition to some single-family homes, some of the land uses include:

- Radio Shack
- Dallas Fire Department
- Polk County Courthouse
- McMullin Chevrolet/Pontiac
- Jefferson Manor Residences
- Dairy Queen

On the west side of Jefferson, there are 15 driveways off the highway. Selective land uses include:

- Dallas City Hall

- Polk County
- Barking Penguin Café
- Dutch Brothers Café
- Citizens Bank

More opportunity for access management exists along Jefferson than along Main, as more businesses have direct driveway access onto the highway, and several have multiple driveways. Access management strategies should be pursued for this segment because portions of it (MP 3.16-3.07) are included in the 2004 SPIS Report as top 10 percent SPIS sites. Driveway consolidation at the car dealership and the Dairy Queen could be appropriate, and there is substantial opportunity to reroute access from the highway onto local side streets.

There are a few vacant, commercial-zoned parcels in this section. As these parcels develop, the City will have an opportunity to incorporate access management measures. Some opportunity exists in this segment for access off of the local street network, or shared driveway access with adjacent businesses.

Segment 6: Washington Street from Jefferson Street to Fairview Avenue

The Kings Valley Highway continues through the south end of downtown Dallas as SW Washington Street. Washington Street is a three-lane roadway with two travel lanes and one center turn lane. There is a traffic signal at the intersection of Washington Street and Levens Street. On-street parking is allowed between Jefferson Street and Church Street. Sidewalks exist on the west side of the highway throughout the segment, though there are some inconsistencies in the sidewalk between Levens and Ellis. The highway transitions from auto-oriented commercial with several accesses at the end closest to the downtown couplet, to closely-settled residential. Figure 6-13 shows the locations of the existing driveways along Washington Street. ADT in this segment is currently 10,400 vehicles/day, which is expected to increase to 14,500 vehicles/day by the year 2025. The portion of this segment between Jefferson Street and Levens Street is being considered for STA status.

The following roads connect to the highway in this segment:

- Church Street is a local road that runs parallel to the couplet between the Rickreall Creek and Birch Street. It serves a variety of users.
- Levens Street is a local road south of Washington Street, and a minor arterial north of Washington Street. To the south of Washington, Levens continues to Oakdale. North of Washington, Levens is a city-designated truck route and connects with W Ellendale Road. The 5-year crash rate at this intersection is 0.79 crash/MEV.
- Hayter Street is a collector road that extends past Academy Street to the north and past Oakdale to the south. Hayter Street serves mainly residential users.
- Ellis Street is a local road that extends only one block north of Washington (turning eastward as Court Street), but continues to the south connecting with Oakdale. Ellis is also a mainly residential street.

On the west side of Washington there are 20 accesses. This approximates one driveway every 200 feet, though most driveways are actually spaced much more closely, and clustered along the three-block section between Levens and Jefferson. Close to half the driveways on the west side of Washington in this section are clustered between these two streets (length of ¼ mile). In addition to single-family homes (focused west of Levens), selected land uses include:

- Dallas City Cleaners
- Dallas Muffler
- Center Market
- Mennanite Brethren Church

On the east side of Washington, there are 27 accesses. This is because the land uses closest to the couplet are predominantly auto-oriented commercial. Each small business has at least one separate driveway. Similarly to the west side of Washington, uses between Fairview and Levens are predominantly residential. Some of the land uses along the east side of Washington include:

- Dallas Mortuary
- Fathertime Clocks
- Feed Store
- Washington Street Pub
- Shell Gas Station
- Chevron Gas Station

Relevant access management techniques for this segment include driveway consolidation or driveway sharing, rerouting access to side streets, and as a potential long-term solution, creating an alley access parallel to Washington.

Segment 7: Fairview Avenue from Washington Street to Oakdale Avenue

Between Washington and Oakdale, the Kings Valley Highway, referred to as Fairview Avenue, is a two-lane highway with on-street parking and sidewalks. The speed limit is 30 miles per hour. See Figure 6-14. The uses are predominantly closely-spaced single-family residential homes. ADT along this highway segment is currently approximately 8,900 vehicles/day. This is expected to increase to 13,300 vehicles/day by the year 2025.

Five local roads connect to the highway in this segment, each running east-west, serving local residents. None of the five roads terminate at Fairview Avenue:

- Clay Street
- Ash Street
- Maple Street

- Birch Street
- Cherry Street
- Oakdale Avenue (five-year crash rate of 0.42 crashes/MEV)

There are 26 driveways off the west side of the highway (approximately one driveway every 100 feet). Land uses include:

- Single family residential
- Fairview Market

There are 22 access points off the highway on the east side of Fairview Avenue (approximately one driveway every 120 feet). Land uses include:

- Single family residential
- Ceramics shop
- Ixtapa Mexican Restaurant
- Sign store (wide driveway)

Access management techniques along this highway segment are limited, though some potential exists to redirect access from the state highway onto local streets.

Segment 8: Fairview Avenue from Oakdale Avenue to UGB

This segment of the Kings Valley Highway is the southernmost within the study area. South of Oakdale there is no sidewalk and no on-street parking. The roadway is two lanes with variable shoulder width. A drainage ditch runs alongside both sides of the highway. Figures 7-15 and 7-16 illustrate the location of existing driveways along this segment. Current ADT is approximately 6,100 vehicles/day. This is expected to increase to 9,800 vehicles/day by the year 2025.

The only road connecting with the highway in this segment is Bridlewood Drive. Bridlewood Drive is a local road accessing Fairview Avenue from the west. There were no crashes recorded at this intersection over the five-year study time period.

The location is predominantly rural – the only non-residential use is the Dallas Cemetery, which has one main access which remains open during the day, and three additional access points which are gated (presumably opened during funeral services. There are a total of 14 driveways between Oakdale and the UGB on the west side of the highway (approximately one driveway every 285 feet), and 17 driveways on the east side of the highway between the UGB and Oakdale (approximately one driveway every 235 feet).

Potential access management techniques for this segment could include requiring future development to limit access to the highway to one local collector street (similar to development along Bridlewood Drive). It is recommended that access to the Dallas Cemetery remain channeled through the main entrance with the exception of funeral processions.

Access Management Techniques

This section does not address access management strategies on a parcel-specific basis. Rather, this section identifies a variety of access management techniques that could be applied when parcels are improved or redeveloped over time. These techniques include driveway consolidation, parallel road improvements, median control, and acquisition of access to properties.

Driveway Consolidation

Driveway consolidation would be most directly employed to businesses and residences with more than one access to the highway. The most dominant example of this is the single-family residences along East Ellendale Avenue. Many of the homes and several of the businesses along this highway have circular driveways. This creates two very closely-spaced access points along the highway for each parcel, and doubles the possible conflict points between vehicles. The benefit of these circular driveways is that drivers sometimes use one access for entry and the other for exit, thereby eliminating the need to back up onto the highway. However, driveway designs could accommodate drivers turning around within the driveway, while retaining only one driveway access per parcel. At least one residence on East Ellendale showed where one end of a circular driveway had been closed.

Another example of potential driveway consolidation could be along Washington Street, where businesses located side-by-side have separate driveways but adjacent parking. These areas could be considered for future driveway consolidation and internal circulation, with either separate or shared parking.

Parallel Road Improvements

The concept of parallel road improvements is to construct or make improvements to a local frontage road running parallel to the highway. The frontage road would provide direct access to homes and businesses, and connect with the highway at one or few locations.

The frontage road concept has limited application in Dallas. Homes and businesses in the City are either built close to the highway (such as along East Ellendale, and along Fairview between Washington and Oakdale) or already employ this concept (such as developments off Bridlewood Drive or Dallas Drive). Few streets truly parallel to the highway exist, and new roads are expensive to construct. However, potential applications for a frontage road could include Washington Street between Levens and Jefferson, where “alley” type access could be provided in back of the parcel fronting the highway.

Local Road Access

Another application of this technique is the provision of alternate, non-highway access to business and residential parcels. This technique has specific application along both highways in the vicinity of Polk Station Road, and Kings Valley Highway in particular along Orchard Drive along Main Street north of the couplet, and along both legs of the couplet north of Mill Street. Examples where this technique appears to have been employed already include the Star Lite Lanes, where access is provided via Walnut Avenue instead of Main Street, and the Thrifty Market where main access is provided along Rainbow Avenue (though secondary access remains open to Main Street).

Median Control

Medians are physical barriers placed on the roadway or at driveways (approaches) to discourage or prevent turns. According to the OHP, medians are typically recommended along expressways or other statewide highways with high daily traffic volumes and/or identified safety problems. The north Dallas intersection project will have raised medians/separators installed on the intersection's southbound and westbound legs (on Main Street, and on W Ellendale Avenue).

There is limited application for additional medians in Dallas. This said, there is one identified potential uses for medians in Dallas. This is the intersection of Orchard Drive and the Kings Valley Highway. Currently there is no signal at this location, and left-hand turns from Orchard onto the highway are allowed. The TSP recommends a signal at this intersection for the future, though an interim measure could be some kind of median structure (such as a porkchop) that disallows left turns, but keeps the intersection open for right-in, right-out access.

Signage

Signage could be employed to disallow left-turn or through turning movements at certain intersections, while keeping the existing access open. These could be employed in the downtown area, such as at Mill and Main and Walnut and Main, where through movement could become dangerous in the future when traffic volumes increase. It is recommended that the City and ODOT monitor movements and crash statistics at these locations to see if signage prohibiting certain movements is warranted.

Access Acquisition

If certain parcels create considerable safety or mobility problems along the state highway, but no alternate local access is possible, the City and/or ODOT could consider purchasing the parcel.

Implementation Guidelines

Section 5.5 of the Dallas Comprehensive Plan provides a discussion of access management within the City of Dallas. Specific access management standards for the city's arterial and collector system are not identified, though the plan states that such access control measures should be developed. In addition, the plan lists a variety of techniques to be considered by the City during the review of development applications:

1. Provide for common driveways (sharing access with adjacent properties)
2. Provide access to collector and local streets
3. Encourage connections between adjacent properties
4. Construct local service roads
5. Avoid offsetting streets and major driveways, especially in commercial areas.

These methods are consistent with the access management techniques recommended in the previous section for the two state highways in the study area.

The Comprehensive Plan also outlines a procedure for the City to coordinate with the County and the State on access management issues. This process includes coordination on maintaining mobility standards, improving safety, bicycle/pedestrian access, and ensuring efficient use of existing and proposed facilities.

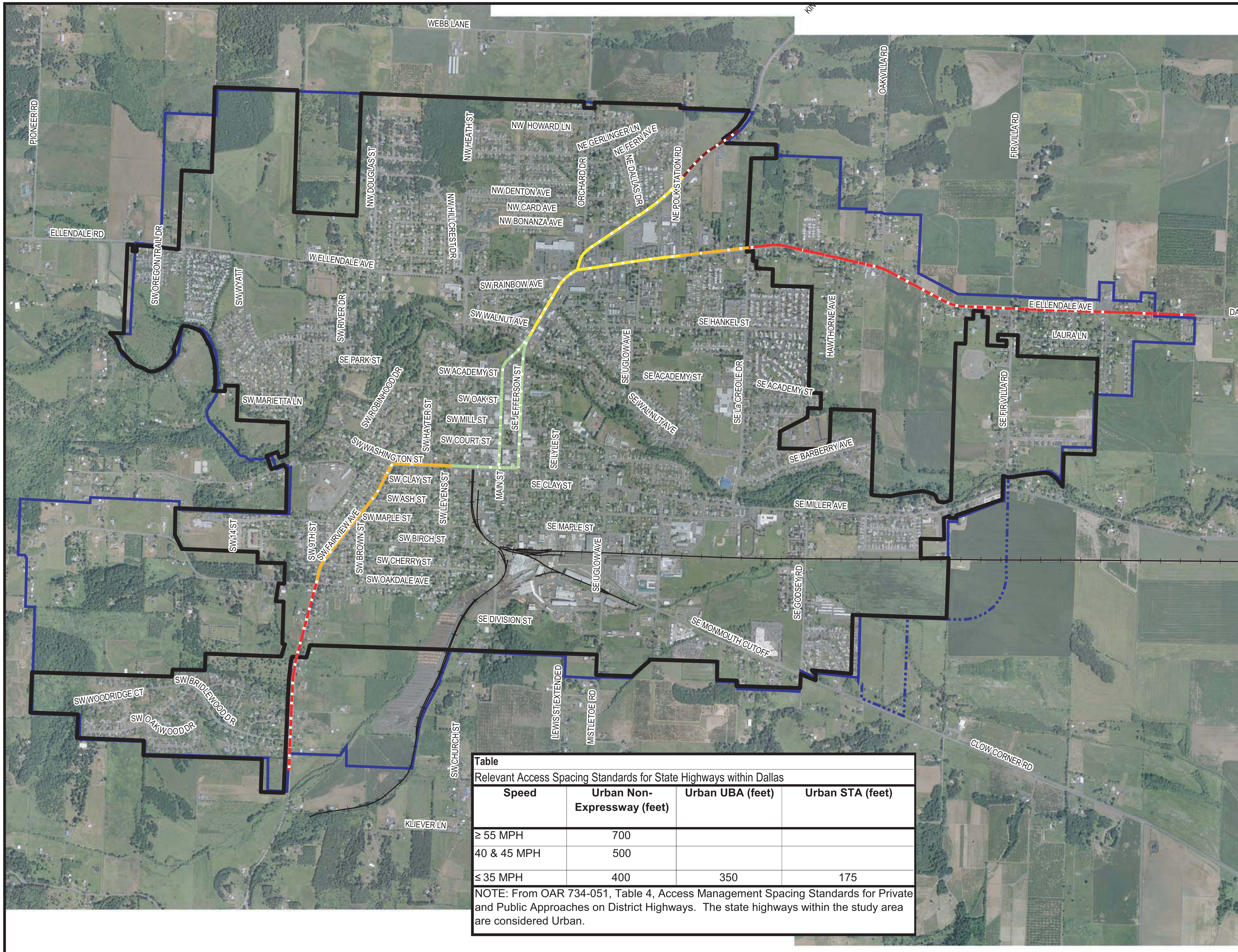
The City has already implemented several access management measures as part of recent OTIA-funded projects. Driveway consolidation and rerouting access to local roads appears to have been employed along Main Street north of the couplet. These same access management strategies will be implemented as part of the north Dallas intersection

Insert Figures 6-1 through 6-16

Dallas TSP

Figure 6-1
Relevant Access Spacing Standards for State Highways in Dallas

Dallas, OR



Table

Relevant Access Spacing Standards for State Highways within Dallas

Speed	Urban Non-Expressway (feet)	Urban UBA (feet)	Urban STA (feet)
≥ 55 MPH	700		
40 & 45 MPH	500		
≤ 35 MPH	400	350	175

NOTE: From OAR 734-051, Table 4, Access Management Spacing Standards for Private and Public Approaches on District Highways. The state highways within the study area are considered Urban.

Legend

- Rail Road
- Spacing Standard (ft.)
  - 175
  - 350
  - 400
  - 500
  - 700
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

1 inch equals 1,750 feet

0 750 1,500 3,000 Feet

CH2MHILL

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Dallas TSP

Figure 6-2
Comparison Between Existing Access and State Spacing Standards

Dallas, OR

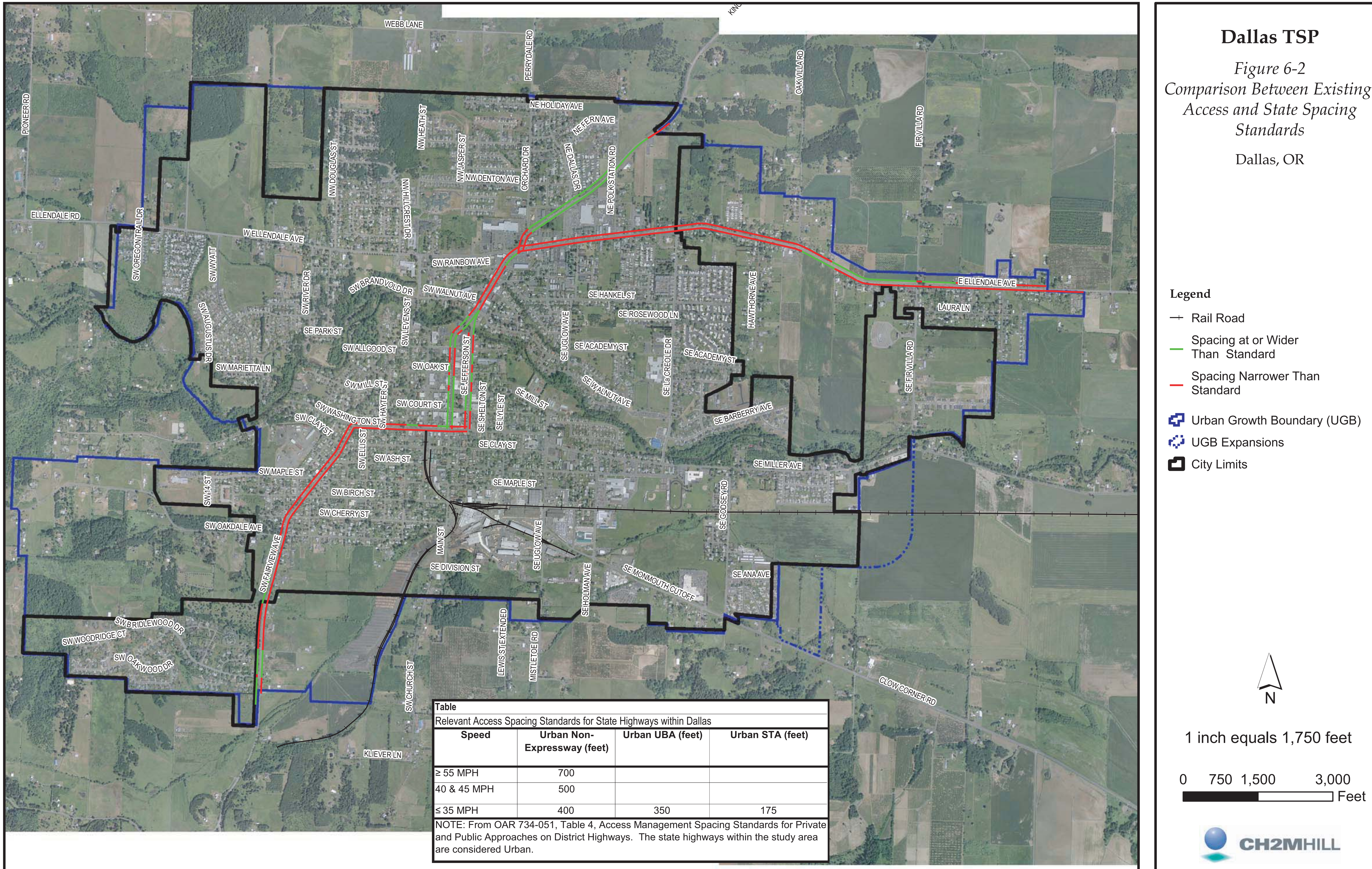

Table
Relevant Access Spacing Standards for State Highways within Dallas

Speed	Urban Non-Expressway (feet)	Urban UBA (feet)	Urban STA (feet)
≥ 55 MPH	700		
40 & 45 MPH	500		
≤ 35 MPH	400	350	175

NOTE: From OAR 734-051, Table 4, Access Management Spacing Standards for Private and Public Approaches on District Highways. The state highways within the study area are considered Urban.

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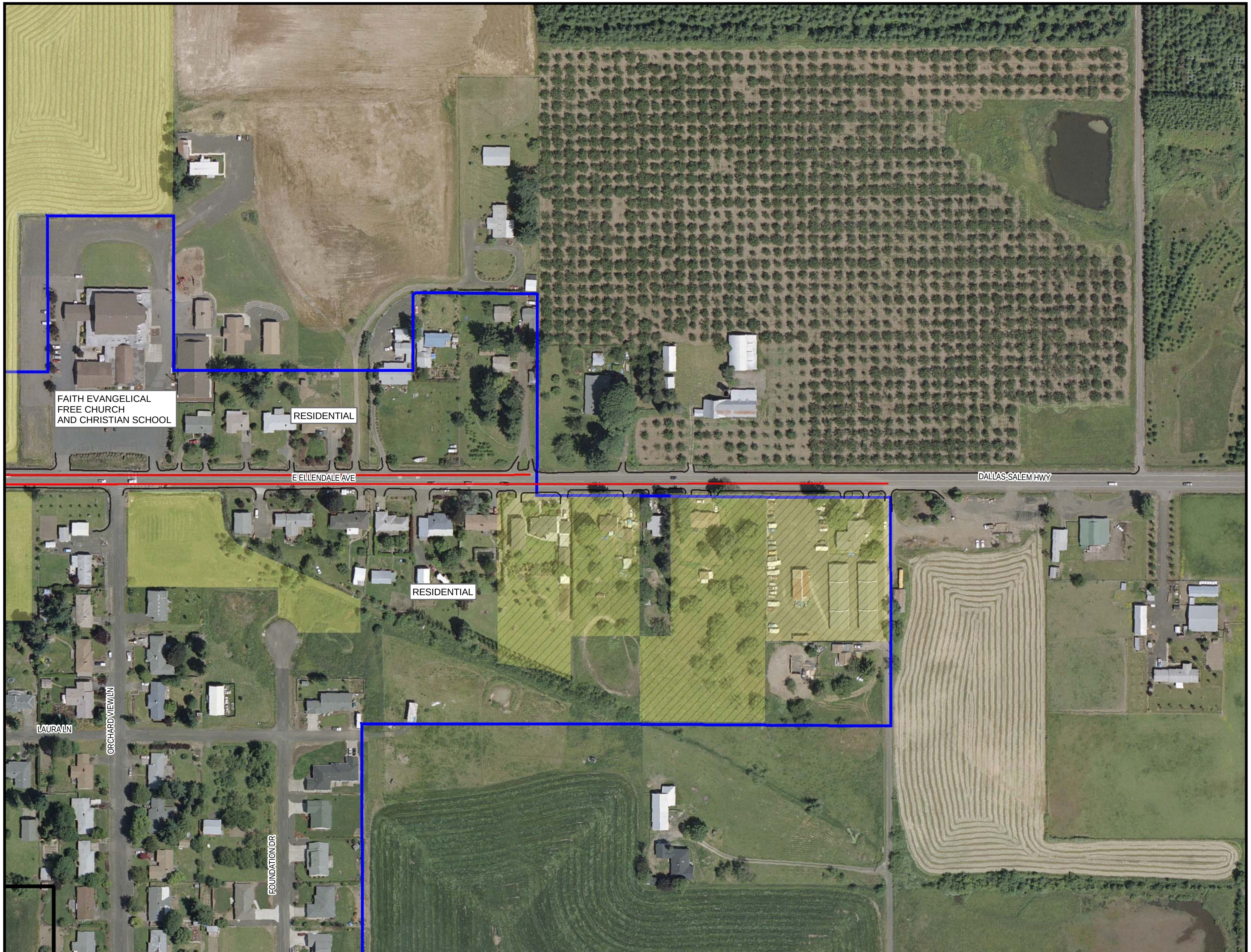


Dallas TSP

Figure 6-3

Dallas Rickreall Existing Access:
East Ellendale between UGB
& LaCreole Drive (Section I)

Dallas, OR

Legend

Rail Road

Spacing at or Wider Than Standard

Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

Agricultural

Commerical

Residential

Underutilized Parcels Adjacent to Highway

Agricultural

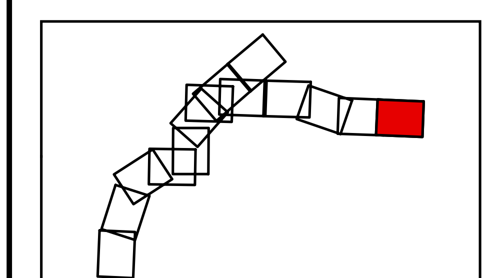
Residential

Urban Growth Boundary (UGB)

UGB Expansions

City Limits

N



1 inch equals 200 feet

0 100 200 400 Feet

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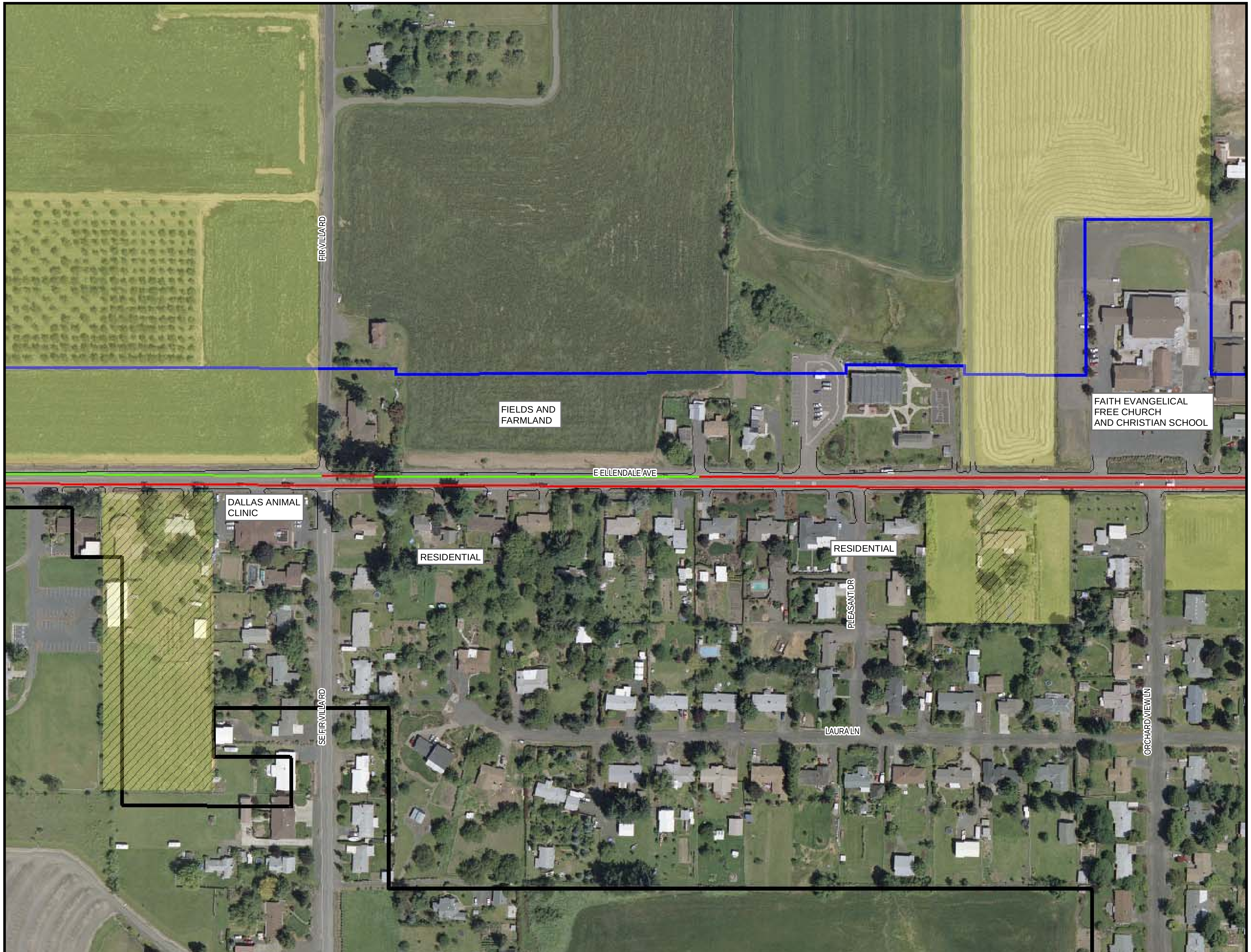


Dallas TSP

Figure 6-4

Dallas Rickreall Existing Access: East Ellendale between UGB & LaCreole Drive (Section II)

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

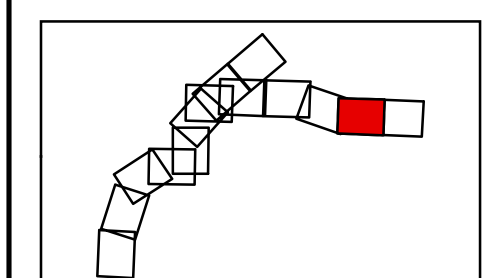
Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N



1 inch equals 200 feet

0 100 200 400 Feet

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Dallas TSP

Figure 6-5

Dallas Rickreall Existing Access: East Ellendale between UGB & LaCreole Drive (Section III)

Dallas, OR

Legend

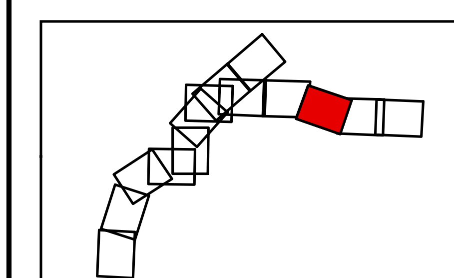
- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits



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Dallas TSP

Figure 6-6

Dallas Rickreall Existing Access: East Ellendale between UGB & LaCreole Drive (Section IV)

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

1 inch equals 200 feet

0 100 200 400 Feet

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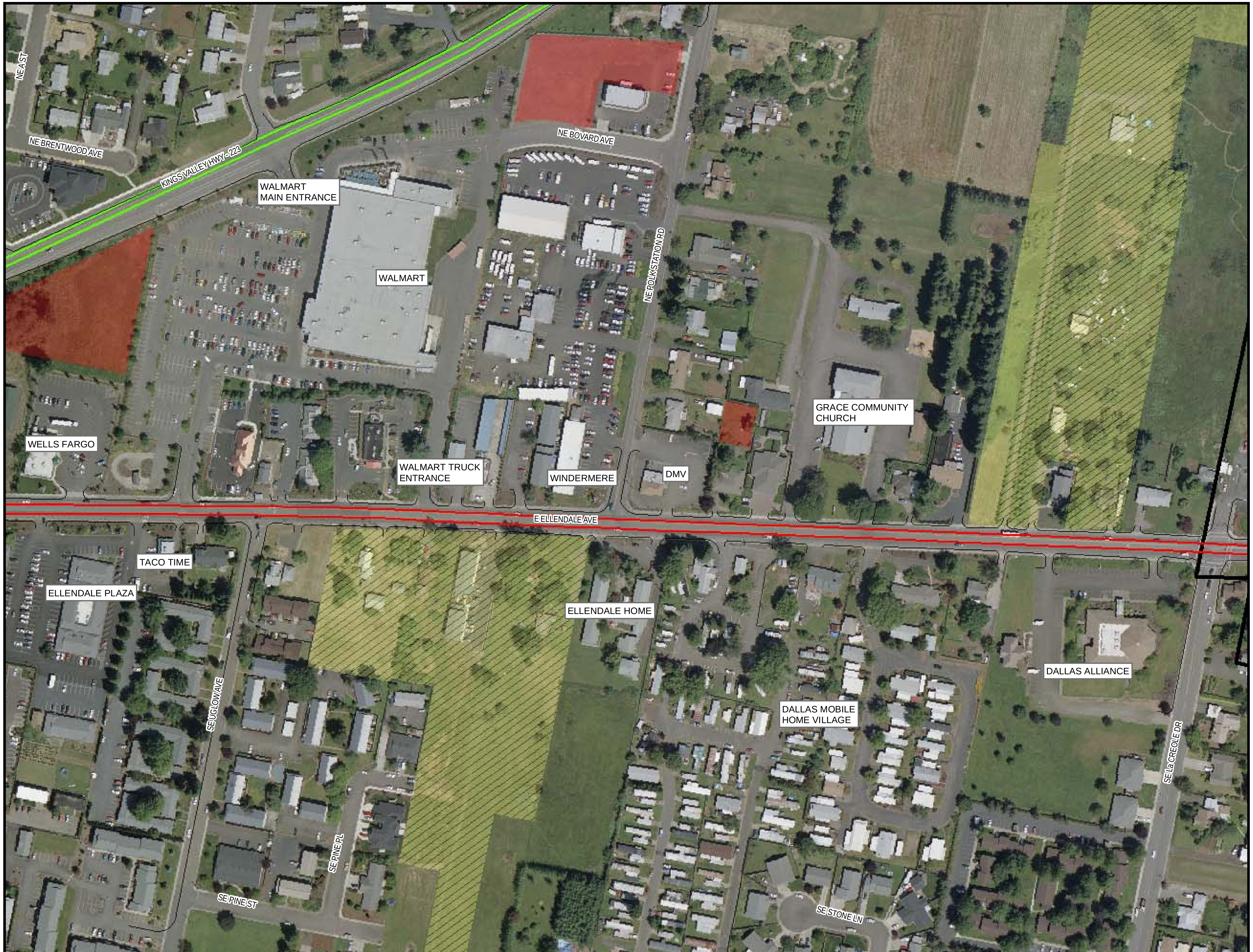


Dallas TSP

Figure 6-7

Dallas Rickreall Existing Access:
East Ellendale between LaCreole
& Kings Valley Highway
(Section I)

Dallas, OR

Legend

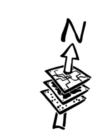
- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

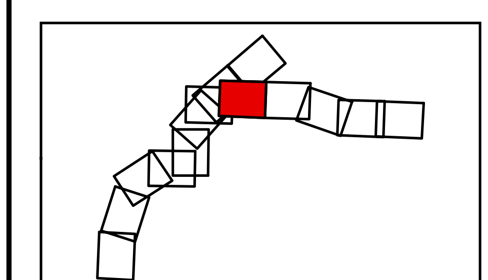
Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits





1 inch equals 200 feet

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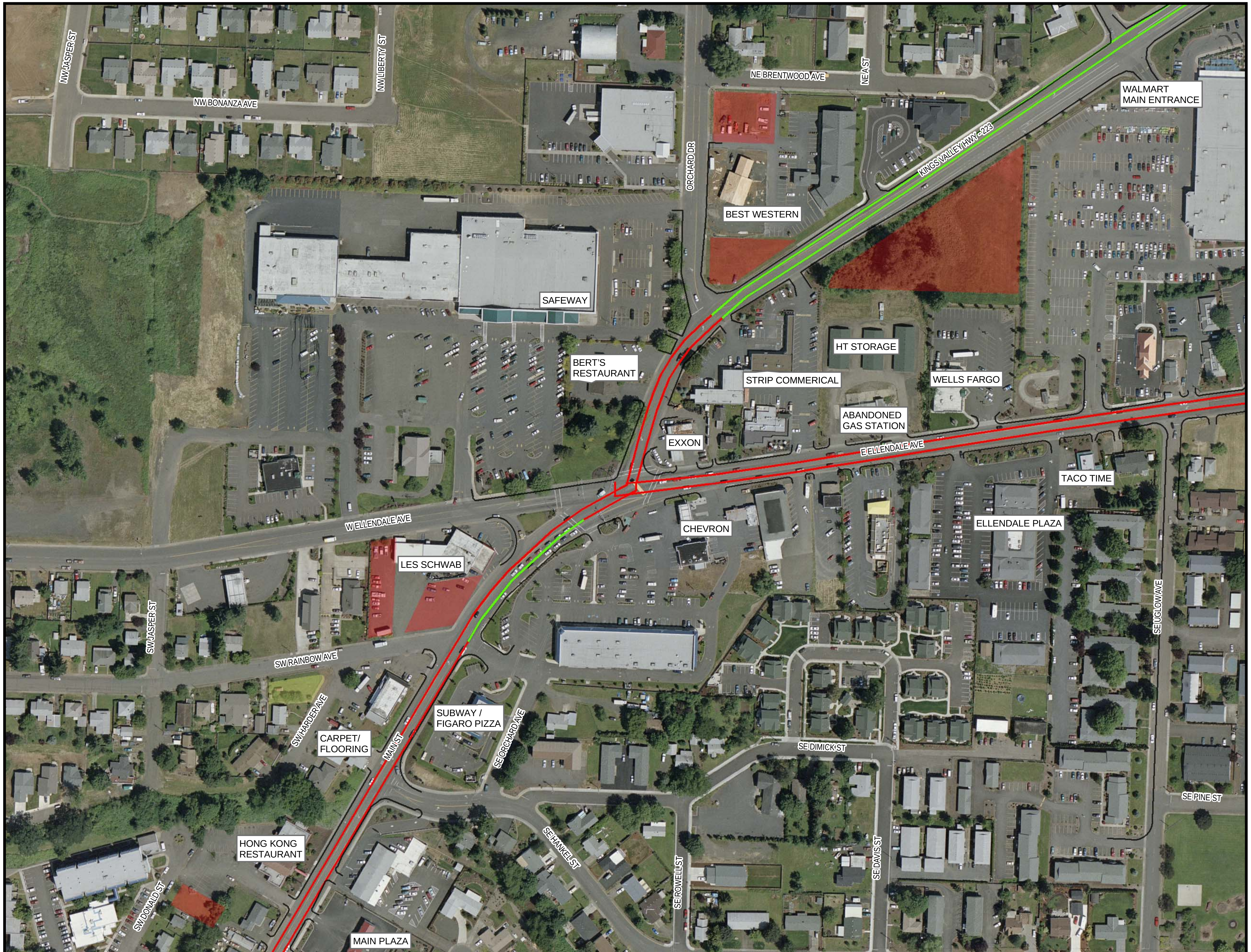
Dallas TSP

Figure 6-8

Dallas Rickreall Existing Access: East Ellendale between LaCreole & Kings Valley Highway (Section II)

Dallas, OR



Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

1 inch equals 200 feet

0 100 200 400 Feet

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Dallas TSP

Figure 6-9

Kings Valley Highway Existing Access: Kings Valley Hwy between UGB & Ellendale (Section I)

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

1 inch equals 200 feet

0 100 200 400 Feet

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Dallas TSP

Figure 6-10

Kings Valley Highway Existing Access: Kings Valley Hwy between UGB & Ellendale (Section II)

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

1 inch equals 200 feet

0 100 200 400 Feet

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Dallas TSP

Figure 6-11

Kings Valley Highway Existing Access: Main Street between Ellendale & North End of Couplet

Dallas, OR

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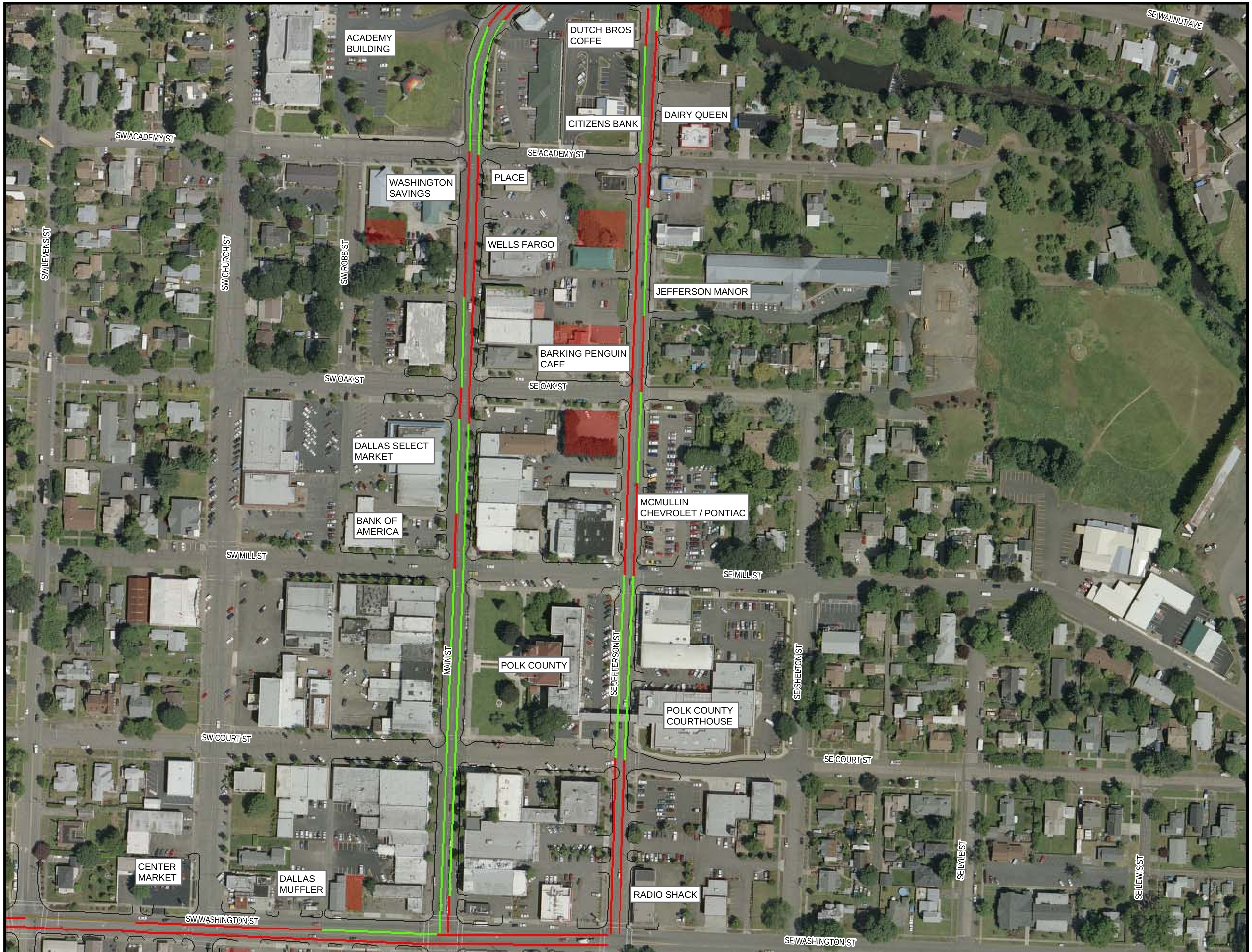

Dallas TSP

Figure 6-12

Kings Valley Highway Existing Access: Main Street & Jefferson Street between Northern End of Couplet

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

1 inch equals 200 feet

0 100 200 400 Feet

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Dallas TSP

Figure 6-13

Kings Valley Highway Existing Access: Washington Street between Jefferson & Fairview

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

1 inch equals 200 feet

0 100 200 400 Feet

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Dallas TSP

Figure 6-14

Kings Valley Highway Existing Access: Fairview Avenue between Washington Street & Oakdale Avenue

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

N

1 inch equals 200 feet

0 100 200 400 Feet

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Dallas TSP

Figure 6-15

Kings Valley Highway Existing Access: Fairview Avenue between Oakdale Avenue & UGB (Section I)

Dallas, OR

Legend

- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits

1 inch equals 200 feet

0 100 200 400 Feet

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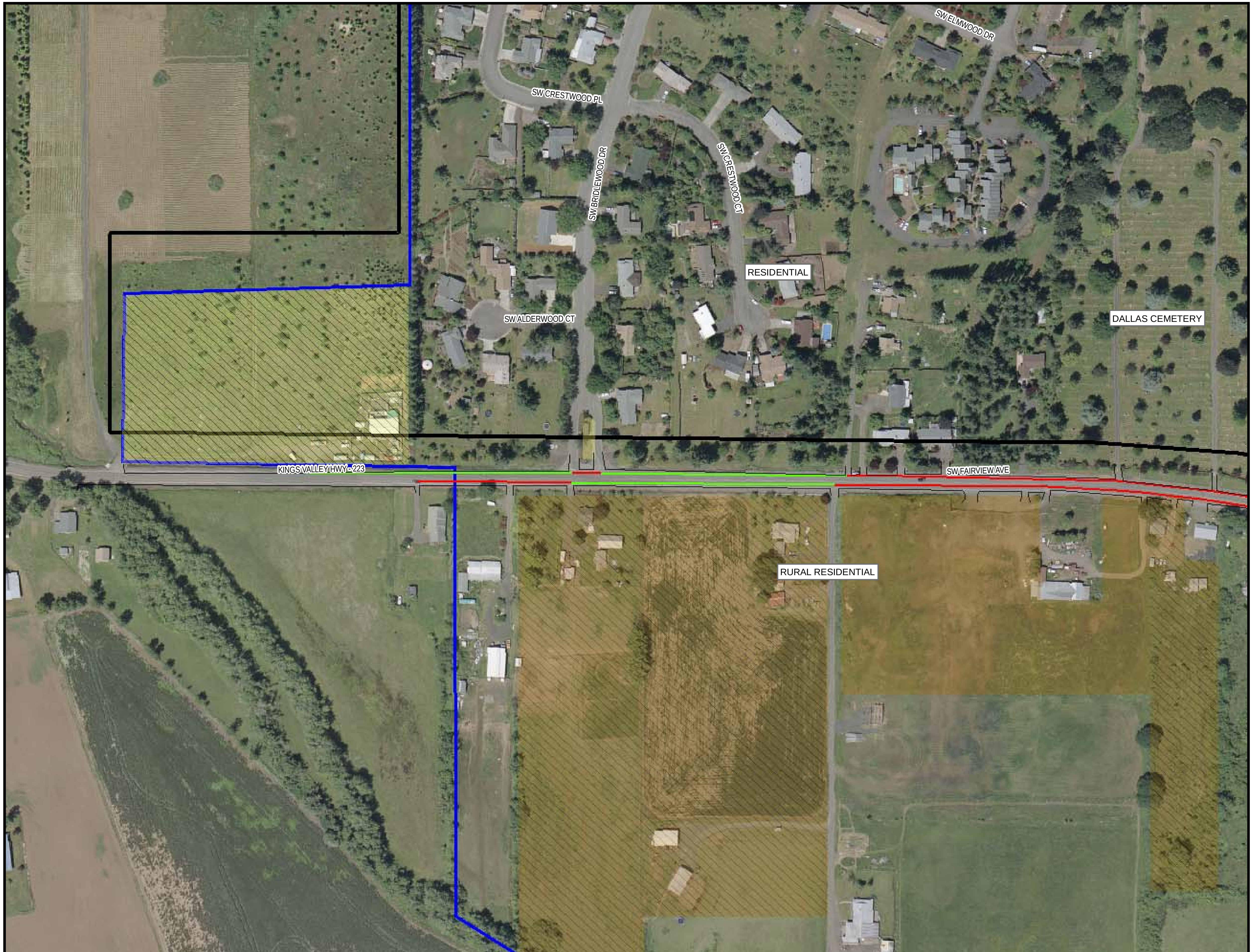


Dallas TSP

Figure 6-16

Kings Valley Highway Existing Access: Fairview Avenue between Oakdale Avenue & UGB (Section II)

Dallas, OR

Legend

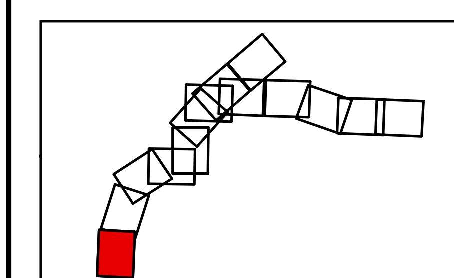
- Rail Road
- Spacing at or Wider Than Standard
- Spacing Narrower Than Standard

Vacant Parcels Adjacent to Highway

- Agricultural
- Commerical
- Residential

Underutilized Parcels Adjacent to Highway

- Agricultural
- Residential
- Urban Growth Boundary (UGB)
- UGB Expansions
- City Limits



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SECTION 7

Modal Plans

This section summarizes the preferred transportation system for the Dallas UGB to be implemented over the next 20 years. The transportation improvements in this section are included based on the analysis of relevant plans and policies, existing and future no build conditions, and the alternatives analysis. This section contains the following subsections:

- Street system plan
- Transit plan
- Pedestrian plan
- Bicycle plan
- Rail facilities plan
- Air, pipeline, and water transport facilities plans
- Transportation demand management

Street System Plan

The Dallas street system plan addresses anticipated operational and circulation needs through the year 2025. The street system plan consists of functional classification designations, street design standards, recommended capacity and connectivity improvements, access management strategies, and traffic operations standards.

Functional Classification Plan

The purpose of classifying streets within the UGB is to create a balanced system that facilitates mobility for vehicles, transit, pedestrians, and cyclists. Street functional classification identifies the intended purpose, the amount and character of traffic, the degree to which non-auto traffic is emphasized, and the design standards. It is essential that the street functional classification consider the adjacent land uses.

The functional classification designations specified in TPR Compliance Document (1995) and the Dallas Development Code (2002) have been modified to come up with the recommended classification designations. These classification designations are discussed below.

- *Major Arterial*: Primary functions are to serve local and through traffic as it enters and leaves the urban area, connect Dallas with other urban centers and regions, and provide connections to major activity centers within the UGB. Per the OHP, emphasis should be on traffic flow and pedestrian and bicycle movements. On-street bicycle lanes and sidewalks should be provided. Figure 7-2 illustrates and summarizes the typical cross section for the preferred design of a major arterial.

- *Minor Arterial*: Primary functions are to connect major activity centers and neighborhoods within the UGB and to support the major arterial system. Minor arterials also serve local and through traffic as it enters and leaves the urban area, connecting Dallas with other urban centers and regions. Minor arterials should have a higher degree of access, and lesser traffic volumes than major arterials. Like major arterials, emphasis should be on traffic flow, pedestrian and bicycle movements. On-street bicycle lanes and sidewalks should be provided. Figure 7-3 illustrates and summarizes the typical cross section for the preferred design of a minor arterial.
- *Major Collector*: Primary function is to provide connections between neighborhoods and major activity centers and the arterial street system. Some degree of access is provided to adjacent properties, while maintaining circulation and mobility for all users. Major collectors carry lower traffic volumes at slower speeds than major and minor arterials. On-street bicycle lanes and sidewalks should be provided. Parking is optional. Figure 7-4 illustrates and summarizes the typical cross section for the preferred design of a major collector.
- *Minor Collector*: Primary function is to connect residential neighborhoods with major collectors, major arterials or minor arterials. On-street parking and access to adjacent properties is prevalent. Slower speeds should be provided to ensure community livability and safety for pedestrians and cyclists. In many cases, cyclists can "share the road" with motor vehicles because of low traffic volumes and speeds. Sidewalks or pathways should be provided for pedestrians. Figure 7-5 illustrates and summarizes the typical cross section for the preferred design of a minor collector.
- *Local Streets*: Primary function is to provide direct access to adjacent land uses. Short roadway distances, slow speeds, and low traffic volumes characterize local streets. Cyclists can share the road with motor vehicles. Sidewalks or pathways should be provided for pedestrians. Figure 7-6 illustrates and summarizes the typical cross section for the preferred design of a local road.

Figure 7-1 shows the functional classification designations for all existing and future streets within the proposed Dallas UGB. In the figure, the alignment of future streets is conceptual, meaning that the end points of the streets are often fixed but the alignment between the end points may vary depending on the design requirements and right-of-way constraints at the time in which the street is constructed.

The designation for all existing streets is as follows:

- *Major Arterial*: Oregon 223 (Dallas Rickreall Highway from North Dallas intersection to ¼ mile east of Fir Villa Road)
- *Minor Arterial*: Monmouth Cut-Off, Clow Corner Road, Oregon 223 (Dallas Rickreall Highway from Fir Villa Road to city limits), Oregon 223 (Kings Valley Highway), West Ellendale Avenue, Polk Station Road (Kings Valley Highway to Dallas Rickreall Highway), Fir Villa Road (Miller Avenue to Dallas Rickreall Highway), Miller Avenue, Uglow Avenue (Washington Street to city limits), Washington Street, Levens Street (West Ellendale Avenue to Washington Street)

- *Major Collector*: Polk Station Road (north of Kings Valley Highway), Oakdale Road (Fairview Avenue to UGB), Orchard Drive, James Howe Road, Douglas Street, Main Street (Washington Street to Maple Street), Maple Street (Main Street to Uglow Avenue), Hankel Street, LaCreole Drive (Dallas Rickreall Highway to Miller Avenue), Barberry Avenue, Godsey Road (Miller Avenue to Monmouth Cut-Off), Hawthorne Avenue
- *Minor Collector*: Fairhaven Lane, Fern Avenue, Dallas Drive, Jasper Street, Denton Avenue (Orchard Drive to Douglas Street), Oak Villa (Dallas Rickreall Highway to UGB), Wyatt Street, River Drive, Clay Street (Fairview Avenue to city limits), Mill Street, Hayter Street (Washington Street south), Academy Street (Levens Street to Main Street), Main Street (Maple Street to Church Street), Church Street (Main Street to city limits), Academy Street (east of LaCreole Drive), Uglow Avenue (Hankel Street to Walnut Avenue), Bridlewood Drive

The remaining streets within the UGB are designated as local streets.

Street extensions typically share the original functional classification of the street from which they are extended. Four streets are not extensions of a road previously mentioned, or differ from the road from which they are extended. They are as follows: (1) the proposed road that will connect Barberry Avenue and Fir Villa Road will be classified as a minor collector; (2) the Denton Avenue extension from Polk Station Road to Hawthorne Avenue will be classified as a major collector; (3) the proposed road south of Oakdale Road extending from Fairview Avenue to the UGB will be classified as a minor collector; and (4) the proposed road that will connect Fairview Avenue to Uglow Avenue south of the mill will be classified as a minor arterial.

STA Designation

According to the 1999 Oregon Highway Plan, a Special Transportation Area (STA) is a highway segment designation that may be applied to a highway segment when it runs through a downtown, or business district within the UGB. Traffic speeds are slow, usually set at 25 mph, and on-street parking is encouraged. The purpose of this designation is to provide access to downtown businesses and residences and to encourage pedestrian traffic throughout the area.

In the city of Dallas, OR 223 (Kings Valley Highway) has an STA designation in the downtown couplet area on Main Street and Jefferson Street. This designation spans north and south between Academy Street and Washington Street. The City has requested an extension of this STA designation north to Walnut Avenue, and along Washington Street from Jefferson Street to Levens Street. The STA zone is depicted on Figure 7-1.

UBA Designation

According to the 1999 Oregon Highway Plan, an Urban Business Area (UBA) is a highway segment designation that may be applied to a District, Regional or Statewide Highway segment that runs through a commercial area and is 35 mph or less. The purpose of this designation is to maintain existing speeds while addressing access needs and traffic flow.

In the city of Dallas, OR 223 has a recommended UBA designation along Kings Valley Highway from Walnut Avenue to Polk Station Road. OR 233 along Dallas Rickreall

Highway also has a recommended UBA designation from the North Dallas intersection to Polk Station Road. The UBA zone is depicted on Figure 7-1.

Street Design Standards

Street design standards are based on the desired functional and operational characteristics, such as vehicular volume, capacity, operating speed, safety, and level of pedestrian and bicycle use. The standards are necessary to ensure that the system of streets, as it continues to develop within Dallas, can safely and efficiently serve motorists, cyclists, and pedestrians while also accommodating the orderly development of adjacent lands.

In commercial districts, the planting area may be hardscaped with paving or brickwork to provide an amenity zone where street furniture (benches, trash receptacles) or utility features (vaults, hand holes) may be located. This will increase the functional pedestrian area and serve to accommodate more pedestrian traffic that would be expected in areas of commercial land use.

Parking Lanes

Parking lanes will be 8 feet wide may be present on one or both sides of the street depending on street classification, available right-of-way and demand. Parking will be restricted within 30 feet of intersections and within 15 feet of driveways.

Bicycle Lanes

Bicycle lanes will be 5 to 6 feet wide and appear on all major arterial, minor arterial, major collector and minor collector streets where they have been identified in the Bicycle Plan. Bicycle lanes will be separated from travel lanes with 6-inch striping and contain bicycle lane markings according to Manual on Uniform Traffic Control Devices (MUTCD) Standards.

Travel Lanes

The street cross-section standards are summarized in Table 7-1. Figures 7-2 through 7-6 illustrate and summarize the typical cross section for the preferred design of each of the street classifications found in Table 7-1.

TABLE 7-1
Typical Street Cross-Sections

Facility	ROW	Travel Lanes	Median Type	Bike Lanes	Sidewalks	On-Street Parking	Planting Strip	Speed	Utility Area
Major Arterial									
Criteria	90’ to 100’	Min. of 2 @ 12’	14’ TWLTL	6’ on both sides	6’ on both sides	None	Min. of 4’ on both sides	30 to 45 mph	0 to 15’ on both sides
Preferred	100’	4 @ 12’	14’ TWLTL	6’ on both sides	6’ on both sides	None	6’ on both sides	30 to 45 mph	1’ on both sides
Minor Arterial									
Criteria	80’ to 90’	2 @ 12’	14’ TWLTL (optional)	6’ on both sides	6’ on both sides	None	Min. of 4’ on both sides	25 to 45 mph	3’ to 17’ on both sides
Preferred	80’	2 @ 12’	14’ TWLTL	6’ on both sides	6’ on both sides	None	6’ on both sides	25 to 45 mph	3’ on both sides
Major Collector									
Criteria	70’ to 80’	2 @ 12’	12’ to 14’ TWLTL (optional but not with parking)	6’ on both sides[1]	6’ on both sides	8’ on both sides (optional but not with TWLTL)	5’ on both sides	25 to 40 mph	0 to 5’
Preferred	74’	2 @ 12’	14’ TWLTL	6’ on both sides	6’ on both sides	None	5’ on both sides	25 to 40 mph	1’ on both sides
Minor Collector									
Criteria	60’ to 70’	2 @ 12’	None	5’ on both sides[1]	5’ on both sides	8’ on both sides	Min. of 4’ on both sides	20 to 35 mph	0 to 6’ on both sides

TABLE 7-1
Typical Street Cross-Sections

Facility	ROW	Travel Lanes	Median Type	Bike Lanes	Sidewalks	On-Street Parking	Planting Strip	Speed	Utility Area
Preferred	70’	2 @ 12’	None	5’ on both sides	5’ on both sides	8’ on both sides	4’ on both sides	20 to 35 mph	1’ on both sides
Local									
Criteria	50’ to 60’	2 @ 10’	None	None	5’ on both sides	8’ on one side	4’ on both sides in Mixed Use Nodes	20 to 35 mph	2’ to 11’ on both sides
Preferred	60’	36’ travel-way	None	None	5’ on both sides	Allowed	None	20 to 35 mph	7’ on both sides
Cul-de-Sac									
Street	50’	2 @ 16’	None	None	5’ on both sides	Allowed	None	20 mph	5’ on both sides
Bulb	50’ radius	40’ radius paved	None	None	5’ around	Allowed	None	20 mph	10’ around
Alley									
Residential	16’	1 @ 16’	None	None	None except in Mixed Use Nodes	None	None	20 mph	None
Commercial	20’	1 @ 20’	None	None	None except in Mixed Use Nodes	None	None	20 mph	None
Ped/Bike Connection	6’ to 12’ paved multi-use path with landscaping. Includes 20’ of ROW.								

[1] Include bike lanes if adopted on plan.

Needed Street Upgrades

Over time, a number of existing streets within the City will be upgraded, and will be improved in compliance with the newly established cross-sections presented above. However, there are streets included in the preferred alternative project list that require improvement to serve their intended/designated function. The upgrades are prioritized as either high, medium, low; high indicates a need within the next 10 years, medium within the next 10 to 15 years, and low within 15 to 20 years. Tables 7-2 and 7-3 present prioritized lists of street upgrades and new street development required over the next 20 years. These projects are also presented in Figure 7-7.

TABLE 7-2
Recommended Street Upgrade Projects

Street Segment / Intersection	Priority
Add eastbound right, westbound right, southbound right turn lanes and eastbound and westbound through lanes to North Dallas Intersection	Low
Add northbound and southbound left turn lanes and eastbound and westbound through lanes, also change the northbound left to lagging protected/permitted at Dallas-Rickreall Highway and LaCreole Drive	High
Signalize and add eastbound left turn lane to Kings Valley Highway and Orchard Drive	Low
Signalize and add eastbound and westbound through lanes to Dallas-Rickreall Highway and Fir Villa Road	High
Add eastbound and westbound through lanes to Dallas-Rickreall Highway and Oak Villa Road	High
Add eastbound and westbound through lanes to Dallas-Rickreall Highway and Polk Station Road	High
Add southbound left turn lane to W Ellendale Avenue and James Howe Road	High
Signalize and add westbound left turn lane to W Ellendale Avenue and Levens Street	High
Signalize and add eastbound left turn lane to Washington Street and Jefferson Street	High
Signalize Mill Street and Main Street	High
Signalize Mill Street and Jefferson Street	High
Change stop control to a four-way stop at Miller Avenue and Fir Villa Road	High
Signalize Dallas-Rickreall Highway and Barberry Avenue	High
Widen Dallas Rickreall Highway to include two through lanes, bicycle lanes and sidewalks in each direction between the North Dallas Intersection and LaCreole Drive	Medium

New Streets

The new streets and streets extensions listed in Table 7-3 are planned over the next 20 years:

TABLE 7-3
Recommended New Street and Street Extension Projects

Street Segment	Priority
Extend Hawthorne Avenue south to Barberry Avenue	High
Extend Hankel Street east to Fir Villa Road	High
Extend Academy Street east to city limits	High
Extend Barberry Avenue east to Fir Villa Road	High
Extend LaCreole Drive north to Kings Valley Highway	High
Extend Wyatt Street north to city limits	High
Extend River Drive south across Rickreall Creek, connecting to Mill street	Medium
Extend Hawthorne Avenue north to connect with new east-west circulation road	High
Build new east-west circulation road connecting Polk Station Road and Hawthorne Avenue	Medium
Extend Jasper Street north to city limits	High
Extend River Drive north to city limits	High
Extend Webb Lane to Kings Valley Highway	Low
Extend Fir Villa Road south to Monmouth Cut-Off	Medium
Create east-west connector road from James Howe Road to Denton Avenue and Fairhaven Lane	High
New connector west from Fairview Avenue to serve southwest quadrant city	Low
Extend Wyatt Street north from city limits to Webb Lane	Low
Extend Jasper Street north from city limits to Webb Lane	Low
Add new connector from Fairview Avenue east to provide access to Mill to/from the south	Low
Add new connector from behind Weyerhauser Mill east to Uglow Avenue	Low
Extend Fern Avenue east to Kings Valley Highway	Low

Access Management

Managing access to the Dallas Rickreall and Kings Valley Highways in the study area will be important to preserve the capacity and enhance the safety of the roadway network. Access management minimizes the number of potential conflict points on the highway, where traffic flow may be disrupted by entering and exiting traffic.

Section 6 outlined strategies for consolidating and managing access along the state facilities located within the City. From a policy perspective, the City and ODOT should consider the need for conditioning each land use action that is located within the vicinity of a state facility with one or more of the actions listed below. This would help to maintain or improve traffic operations and safety along the state facilities in Dallas. It should be noted that these projects would be opportunity-driven, based on property conversion or future roadway projects.

Some specific access management techniques that could be employed in Dallas include:

- *Driveway Consolidation* – Accesses to businesses and residences with multiple driveways onto the highway could be reduced to one driveway. Adjacent businesses with separate, individual driveways could be encouraged to share one highway access.
- *Local Road Access* – Direct driveway access to the highway could be closed when a parcel is located on a corner of an intersection between the state highway and a local road, and alternate access is provided or available to the local road.
- *Parallel Road Improvements* – Improvements could be made to a local road parallel to the highway that would provide direct access to homes and businesses, and connect with the highway at one or few locations.
- *Access Acquisition* – If certain parcels create considerable safety or mobility problems along the state highway, but no alternate local access is possible, the City and/or ODOT could consider purchasing the parcel.

The City has already implemented several access management measures as part of recent OTIA-funded projects. Driveway consolidation and rerouting access to local roads appears to have been employed along Main Street north of the couplet. These same access management strategies will be implemented as part of the north Dallas intersection

On existing and new arterial and collector streets within its jurisdiction, the City should continue to manage access to provide safe and efficient vehicular, pedestrian and bicycle operations. The Dallas Development Code should be amended to include access standards for public streets and private accesses. These standards should be implemented as development and redevelopment occurs along the City facilities.

Traffic Operations Standards

Along state facilities, the OHP governs the applicable traffic operation standards. The following mobility standards are included in the 1999 OHP:

- On Oregon 223, within the STA, a maximum volume-to-capacity ratio of 0.95 should be maintained.
- On Oregon 223, outside of the STA, when the speed limit is less than 45 mph a maximum volume-to-capacity ratio of 0.80 should be maintained.
- On Oregon 223, outside the STA, when the speed limit is great than or equal to 45 mph a maximum volume-to-capacity ratio of 0.75 should be maintained based on its classification as a regional highway.

For City streets the following mobility standards are used for evaluation:

- When the speed limit is less than 45 mph a maximum volume-to-capacity ratio of 0.80 should be maintained.

- When the speed limit is great than or equal to 45 mph a maximum volume-to-capacity ratio of 0.75 should be maintained.
- As an alternative measurement to the volume-to-capacity ratio, a level-of-service of C or better should be maintained on collector or arterial streets.

The evaluation of traffic operations was conducted using the methodology detailed in Appendix A.

Two intersections evaluated in the plan have recommendations that do not achieve the standards listed above—the north Dallas intersection and the intersection of Miller and LaCreole. For the intersection of Miller and LaCreole, the problem movement identified is the southbound left turn, and the number of vehicles making this turn did not justify recommending the installation of a traffic signal.

With the recommended improvements to the north Dallas intersection, it is close to achieving the designated mobility standard. Further capacity improvements required to fully comply with mobility standards are not recommended at this time, as the trade-offs include potential business displacements and a very wide intersection that would be difficult for pedestrians to cross. As this area is a focal point for the City's commercial growth, access to businesses will be equally important as through-traffic mobility.

It is recommended that the City monitor these two locations over time for performance, comparing the costs and benefits of associated capacity and operation projects.

Transit Plan

The City does not directly operate transit service in Dallas. Rather, point-deviated fixed route transit service in Dallas is operated by the Chemeketa Area Regional Transit System (CARTS), and paratransit service is provided by Polk County Dial-A-Ride. The transit service provider for the Salem area, Cherriots, does not currently provide transit service in the City, but lists the possibility of serving Dallas in the future in its Strategic Business Plan.

Several opportunities are available for the City to coordinate with these area transit service providers and the Oregon Housing Associated Services (OHAS) to provide higher-quality transit service to City residents and employees:

- **Increase Service Frequency.** Currently, CARTS operates 10 runs servicing Dallas, Rickreall, Salem, Monmouth, and Independence. These runs are provided during the weekday peak hours only. A 2004 survey of riders indicated that midday and evening service would be of interest to riders, both those commuting to and from Salem and to non-commuter patrons using transit service during non-peak times. The City of Dallas should coordinate with CARTS to identify potential operation and rolling-stock funding sources to operate more frequent service, including the potential need to procure additional transit vehicles.
- **Weekend Service.** CARTS service does not operate on weekends. The recent ridership survey conducted for CARTS service also indicated that weekend service is of great interest. The City of Dallas should coordinate with CARTS to identify potential funding sources for operating weekend service.

- **Education and Advertisement.** The City of Dallas should work with area transit agencies to jointly advertisement transit service within the City, and inform residents of transit options.
- **Extension of Cherriots Service.** Future service to Dallas is mentioned as a possibility in the short-range element of Cherriots' Strategic Business Plan. In this plan, Cherriots identifies funding to be made available in fiscal year 2008 or later that could be available to explore expanding commuter services to communities near Salem. The City of Dallas is encouraged to coordinate with Cherriots to identify demand for this service within Dallas, and on possible scheduling and routing issues.
- **Park-and-Ride Lot.** According to CARTS' spring 2004 ridership survey, over half the riders boarding a CARTS bus in Dallas disembarked in Salem. Furthermore, a significant percentage of Dallas residents commute by automobile to Salem each workday. There is a potential demand for a park-and-ride facility on the east end of Dallas for CARTS and possible future Cherriots service. Often, park-and-ride facilities can be located in existing parking lots that are currently used for other purposes and not demanded during the weekday. Potential compatible uses for a commuter parking lot include churches, fraternal organizations, cinemas, and dinner-oriented restaurants.
- **Transit Amenities**. CARTS buses currently stop at 12 fixed locations in the City of Dallas. These include the hospital, Goodwill, the Aquatic Center, downtown, in front of the Safeway, and in front of the Wal-Mart. The City should coordinate with other relevant agencies to improve transit amenities at these locations, by either building new facilities or replacing existing facilities over time. Transit amenities include transit shelters with rain and wind protection, benches, trash receptacles, and schedule information. All transit stops should be accessible to all potential riders as per standards provided in the Americans with Disabilities Act.

Pedestrian Plan

Recommendations for sidewalk in-fill, intersection improvements, and new sidewalk construction are listed in Table 7-4 and displayed in Figure 7-8. Recommended pedestrian improvements focus on providing safe and direct connections to schools, community and recreation centers, parks, neighborhoods, commercial areas, employment centers, and future transit stops.

Pedestrian improvement recommendations are organized into Short (within the next 10 years), Medium (within 10-15 years), and Long (within 15-20 years) recommendations. Short-term recommendations are the top priority pedestrian improvement projects. Medium-term projects are either are more challenging to implement or are contingent on future development, increased traffic volumes, and changing land uses. Long-term projects are recommended only as part of a larger roadway project. These projects are generally important to overall connectivity but are prohibitively costly as stand-alone projects.

TABLE 7-4
Recommended Pedestrian Improvement Projects

Project No.*	Pedestrian Improvement	Priority
P-1	Construct new sidewalk on south side of W Ellendale Avenue from Wyatt to River Drive	Short
P-19	Construct new sidewalk on south side of Kings Valley Highway from Orchard Drive to Wal-Mart	Short
P-6	Construct new sidewalk on Miller Road from just east of LaCreole to just west of Fir Villa	Short
P-7	Construct new sidewalk on Godsey Road from Monmouth Cut-Off to Miller Avenue	Short
P-10	Construct new sidewalk on Maple Street from Lyle Street to Uglow Avenue	Short
P-12	Widen and improve sidewalk condition and upgrade curb ramps on Levens Street from W Ellendale Avenue to Rickreall Creek	Short
P-14	Improve sidewalk condition, upgrade curb ramps and fill in missing segments of sidewalk on Mill Street between Jefferson Street and Uglow Avenue	Short
P-9	Fill in sidewalk segment and upgrade curb ramps on Fairview Avenue between Clay Street and Maple Street	Short
I-1	Enhance mid-block crossings at Levens and Ellendale with curb extensions	Short
I-2	Install marked crosswalk, curb extensions, and illumination at Levens and Walnut where the trail crosses the roadway	Short
I-4	Construct a mid-block crossing at Dallas Drive and King's Valley Highway with raised pedestrian refuge, illumination and a marked crosswalk would improve connections from the neighborhood to the Wal-Mart	Short
I-6	Install curb extensions and a marked crosswalk at Ash and Uglow to help bicycle route users and school children cross Uglow to connect schools and neighborhoods	Short
I-7	Install curb extensions and a marked crosswalk at Maple and Fairview to help bicycle route users and school children cross Fairview to connect schools and neighborhoods	Short
T-1	Construct Rickreall Creek Trail from Levens to LaCreole	Short
P-3	Construct new sidewalk on the south side of King’s Valley Highway from Wal-Mart to Polk Station Road and on the north side from 100’ east of Dallas Drive to Polk Station Road	Medium
P-11	Construct new sidewalk on the north side of W Ellendale Avenue from Wyatt Street to city limits	Medium
P-4	Widen sidewalk and add landscaping buffer on W Ellendale Avenue between LaCreole Drive and Levens Street.	Medium
P-16	Fill in sidewalk segment on east side of LaCreole Drive between Walnut Avenue and Barberry Avenue	Medium
P-9	Construct new sidewalks on Fairview Avenue from Oakdale Road to Bridlewood Drive	Long
P-18	Construct new sidewalks on Monmouth Cut-Off from Maple Street to Godsey Road	Long
P-5	Construct new sidewalks on Fir Villa Road from Dallas-Rickreall to existing sidewalk	Long
P-4	Construct new sidewalk on Dallas-Rickreall Highway from LaCreole Drive to Fir Villa Road	Long
P-20	Construct sidewalk on River Drive from Rickreall Creek bridge to W Ellendale Avenue	Long
T-2	Construct Rickreall Creek Trail from LaCreole to Fir Villa	Long
T-3	Construct Rickreall Creek Trail from Levens to western City Limits	Long

* The “project number” identified in this column corresponds to the labels on Figure 7-8.

In addition to the list of pedestrian improvements above, all new streets recommended in the Street System Plan are expected to include sidewalks.

Programmatic Recommendations: Pedestrian Facilities

Local Roads

Dallas is an easy city to travel on foot and is regarded by its citizens as a community of walkers. Its geographic size, access to community destinations, and good existing facilities contribute to its desirable walking environment. However, there are sections along the city's local roadways where the sidewalk condition has deteriorated or is not up to current standard. A general sidewalk inventory was completed for arterials and collectors as part of the TSP planning process, but a detailed inventory is needed for local roads. These areas should be inventoried and systematically improved, based on their proximity to destinations people will walk to and from. While sidewalk maintenance is generally the responsibility of the adjacent land owner, the City could dedicate funds to upgrade and improve the condition of sidewalks along these roadways. Particular attention should be paid to roadways leading to and surrounding schools, parks, and community and recreation centers. The inventory should include width of sidewalk, pavement condition, and if the curb ramps are ADA accessible.

Crossing Rickreall Creek

North-south pedestrian connectivity can be improved tremendously by providing non-motorized creek crossings over Rickreall Creek. It is recommended that the City continue to pursue funding to implement the planned crossings for the Rickreall Creek trail, as well as consider additional crossings between LaCreole and Fir Villa. Connecting Uglow over the creek should be a high priority, as it would provide excellent connectivity to low-volume roadways.

Bicycle Plan

The Recommended Bikeway Network for the City of Dallas is shown in Table 7-5 and in Figure 7-9. The system of bikeways is classified into standards recognized by the ODOT Bicycle and Pedestrian Plan.

Bicycle facility recommendations are organized into Short (within the next 10 years), Medium (within 10-15 years), and Long (within 15-20 years). Short-term recommendations are the top priority bicycle facility projects. Most bicycle route projects are in this tier due to their relatively low cost and ease of implementation. Medium-term projects are either are more challenging to implement or are contingent on future development, increased traffic volumes, and changing land uses. Long-term projects are recommended only as part of a larger roadway project. These projects are generally important to overall connectivity but are prohibitively costly as stand-alone projects.

The short, mid- and long-term schedule may change according to available funds, changing priorities, new roadway projects that coincide, new development and redevelopment opportunities, or other factors.

TABLE 7-5
Recommended Bicycle Improvement Projects

Project No.*	Bicycle Improvement	Priority
B-1	Construct bicycle lanes on W Ellendale Avenue from western city limits to North Dallas Intersection	Short
B-2	Construct bicycle lanes on Levens Street from W Ellendale Avenue to Academy Street	Short
B-3	Stripe bicycle lanes on both sides of Kings Valley Highway from W Ellendale Avenue to Orchard Drive and on north side from Orchard Drive to city limits	Short
B-4	Construct bicycle lanes on LaCreole Drive from W Ellendale Avenue to Miller Avenue	Short
B-6	Stripe bicycle lanes on Miller Avenue from LaCreole Drive to Fir Villa Road	Short
B-8	Construct bicycle lanes on Main Street from W Ellendale Avenue to north end of couplet	Short
B-9	Add bicycle route signs on Mill Street from Washington Street to River Drive	Short
B-10	Stripe bicycle lanes on Main Street from north end of couplet to Washington Street	Short
B-11	Construct bicycle lanes on Jefferson Street from north end of couplet to Washington Street	Short
B-20	Add bicycle route signs on Walnut Avenue from Levens Street to LaCreole Drive	Short
B-21	Add bicycle route signs on Main Street from Washington Street to Ash Street	Short
B-22	Add bicycle route signs on Jefferson Street from Washington Street to Ash Street	Short
B-23	Add bicycle route signs on Hayter Street from Maple Street to Oakdale Avenue	Short
B-24	Add bicycle route signs on Oakdale Avenue from Hayter Street to Fairview Avenue	Short
B-25	Add bicycle route signs on Maple Street from Fairview Avenue to terminus of Maple Street	Short
B-12	Add bicycle route signs on River Drive from W Ellendale Avenue to Mill Street	Medium
B-13	Stripe bicycle lanes on Orchard Drive from Kings Valley Highway to city limits	Medium
B-14	Stripe bicycle lanes on Polk Station Road from Kings Valley Highway to Dallas Rickreall Highway	Medium
B-15	Add bicycle route signs on Hawthorne Avenue from Dallas Rickreall Highway to Barberry Avenue	Medium
B-16	Stripe bicycle lanes on Hankel Street from Hawthorne to Main Street	Medium
B-27	Construct bicycle lanes on Dallas Rickreall Highway from LaCreole to eastern city limits	Long
B-5	Construct bicycle lanes on Fir Villa Road from Dallas Rickreall Highway to Miller Avenue	Long
B-7	Construct bicycle lanes on Monmouth Cut-Off Road/Uglow Avenue from Mill Street to city limits	Long
B-17	Construct bicycle lanes on Godsey Road from Miller Avenue to Monmouth Cut-Off	Long
B-19	Construct bicycle lanes on Washington Street and Fairview Avenue from Jefferson Street to city limits	Long

* The “project number” identified in this column corresponds to the labels on Figure 7-9.

In addition to the list of bicycle facility improvements above, all new streets recommended in the Street System Plan are expected to be built to City design standards, which will include bicycle lanes. The recommended multi-use Rickreall Creek trail is listed in the previous table of pedestrian improvements.

Bicycle Lane Recommendations

Generally, bicycle lanes are recommended on all ODOT roadways, which also serve as the principal arterials in the community. These roadways accommodate the highest volumes of traffic, often traveling at high speeds, particularly near the city limits. Bicycle lanes on these roadways are recommended based on guidance from the ODOT Bicycle and Pedestrian Plan and to complement the objectives of the Special Transportation Area designation as outlined by the Oregon Highway Plan.[7] These roads include OR 223 within the study area, labeled Main, Jefferson, Dallas-Rickreall Highway, King's Valley Highway, Washington and Fairview.

Bicycle lanes are also recommended on higher volume arterials and collectors that directly serve schools, parks, neighborhoods, and regional bicycle facilities. These roads include Miller, Godsey, Monmouth Cut-Off/Uglow, and Ellendale Avenue.

Where right-of-way is plentiful, such as the downtown couplet, striping bicycle lanes is not difficult. However, striping bicycle lanes on other roads are more challenging due to limited rights-of-way (i.e., Dallas-Rickreall) or existing on-street parking. Alternate routes for extremely challenging roadways have been identified and recommended for bicyclists based on the assumption that these roads will neither be reconstructed nor widened in the foreseeable future.

SW Levens Street: Bicycle Lane versus Bicycle Route

Levens exists today as a signed bicycle route and provides one of four crossings of Rickreall Creek in the city, as well as direct access to Dallas City Park, an elementary school, downtown Dallas, neighborhoods, and a future extension of the Rickreall Creek Trail. The roadway is a very desirable route for bicyclists and pedestrians. Levens is also a designated truck route and conflicts are inherent. Due to the limited number of north-south travel options for motor vehicles, pedestrians, and bicyclists, re-routing the trucks may not be feasible or practical. Thus, this plan recommends the consideration of striped bicycle lanes on Levens from Ellendale to Academy Street. Bicycle lanes will provide additional separation from motor vehicle traffic for both bicyclists and pedestrians.

7 Oregon Department of Transportation (1999), Guidance on Special Transportation Areas, Oregon Highway Plan

Bicycle Route Recommendations

Sign OBD11-1, Destination

Oregon Department of Transportation

Bicycle routes are the preferred bikeway treatment in Dallas due to their low implementation cost and maintenance requirements. Many local roads in Dallas are suitable as bicycle routes and can easily complement a comprehensive network of bicycle lanes. Bicycle routes are used to designate urban roadways as a preferable travel route for bicyclists. This includes using comprehensive signing with arrows and destination information (see graphic at left). Traffic calming and restricted though access for motor vehicles are two tools that can be used to make a bicycle route truly a preferential travel route for bicyclists.

Programmatic Recommendations: Bicycle Facilities

Bicycle Parking Recommendations

Bicycle parking, consisting primarily of bicycle racks, should be installed on public property, or available to private entities on an at-cost basis. Bike racks are provided at many local schools and at downtown locations in Dallas, but overall the lack of safe and secure bicycle parking is a concern of bicyclists who may wish to ride to work or to shop. Theft and vandalism of bicycles, especially now that bicycles are often valued between $250 and $2,000, is a major impediment to bicycle riding. A systematic program to improve the quality and increase the quantity of bicycle end-of-trip facilities should be implemented in Dallas.

Increase Public Bicycle Parking Facilities

Bike racks should be provided at public destinations, including community and recreation centers, parks, and schools. All bicycle parking should be in a safe, secure, covered area (if possible). Bicycle parking on sidewalks in commercial areas should be provided according to specific design criteria, reviewed by merchants and the public, and installed as demand warrants. As a general rule, 'U' type racks bolted into the sidewalk are preferred on downtown sidewalks, to be located intermittently and/or at specific bicycle destinations.

Adopt a Bicycle Parking Ordinance

Consider adoption of a bicycle parking ordinance, which requires that bicycle parking facilities be included in all new commercial and office development projects in the Dallas. For example, all new commercial development or redevelopment in excess of 40,000 gross leasable square feet should be required to provide one space in an approved bicycle rack per 10 employees. Such an ordinance could also apply to multi-family residential buildings to ensure that residents of apartment buildings are provided a place to store bicycles off the street.

Rail Facilities Plan

There are no passenger rail facilities within the City of Dallas. Freight rail facilities owned by Western Pacific exist at the south end of the City. This is a spur line that links the Weyerhaeuser Mill with the Western Pacific mainline approximately 3.5 miles east of the City. The Western Pacific mainline provides rail freight service to Salem, Portland, and Eugene, and other destinations.

Approximately 50 percent of the Mill's wood products are transported by rail, with the remainder transported by truck. This mode split has changed in recent years from 70 percent product by rail, due to reduced reliability of freight rail service. Currently the Mill operates one 6-8 car train per day to either California or the northeastern United States, typically during the early morning hours. Product is transported to other parts of the United States during certain times of the year.

The Mill has plans to improve the switch running north/south at the west end of the spur, and the switch running through the mill site parallel and immediately south of the Monmouth Cutoff Road. These improved areas would store rail cars so that in the future, trains carrying 15-20 cars can serve the Mill. With these improvements, the Mill anticipates that its mode split could change to 70 percent rail / 30 percent truck in the future.

Seven at-grade railroad crossings exist within the City. At-grade crossings could create a safety conflict between trains and other modes of transportation. None of the crossings is currently gated. Current ODOT standards recommend that an improved gated rail crossing be installed at at-grade intersections to provide for safe crossing across rails. It is recommended that the City coordinate with ODOT and the railroad to perform a technical field survey at ungated crossings to identify if any should be reconstructed with a gated rail crossing.

Air Transport Facilities

There are no commercial airports within the Dallas UGB. The Independence State Airport is located approximately seven miles southeast of Dallas in the City of Independence and the Salem Municipal Airport is located 15 miles west of Dallas in Salem. The nearest commercial airline service is the Portland International Airport, which is located approximately 60 miles away. A privately-owned airfield north of OR 223 on Orchard Drive closed in 1990.

It is not anticipated that any air transport facilities will be constructed or needed in Dallas in the 20-year planning timeframe. The City supports the Independence State Airport as the nearest facility for use by small, private aircraft.

Pipeline Transport Facilities

There are no pipeline facilities within the Dallas UGB. It is not anticipated that any pipeline facilities will be constructed or needed in the 20-year planning timeframe.

Water Transportation Facilities

There are no significant navigable waterways within the Dallas UGB. It is not anticipated that any water transportation facilities will be constructed or needed in the 20-year planning timeframe.

Transportation Demand Management (TDM)

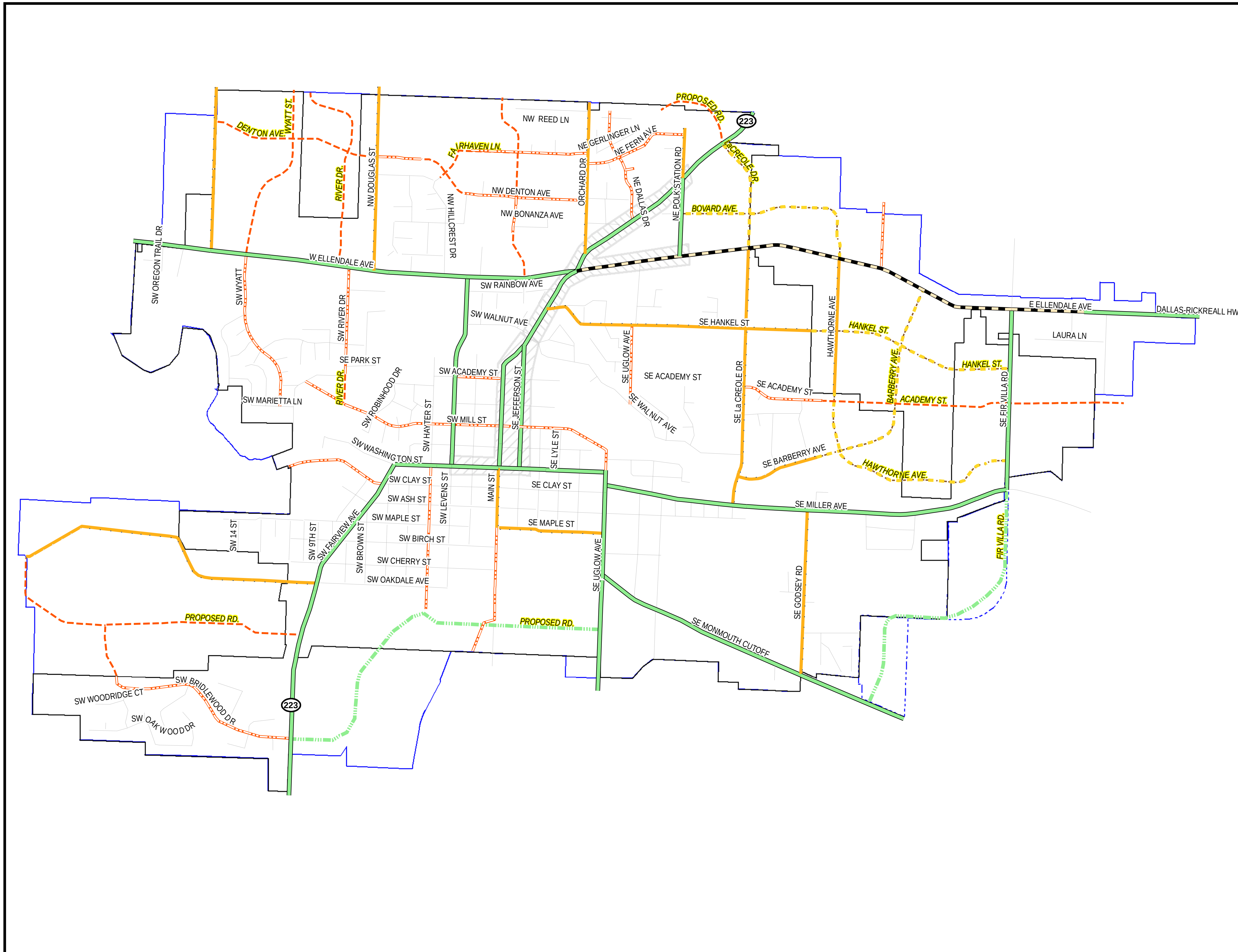
TDM programs seek to improve the efficiency of the transportation system by shifting single-occupant vehicle trips to other modes, or away from times of peak traffic volumes. TDM programs are typically implemented by employers. When implemented by a number of employers, TDM measures may avoid the need for some roadway capacity improvement projects, or at least defer the need farther into the future.

Because its population is less than 25,000 persons, Dallas is not required by the TPR to develop a TDM plan. However, TDM programs are good planning practice for any urban area experiencing traffic congestion. Examples of TDM measures include:

- Encouraging use of existing carpool matching programs for ridesharing provided by Mid-Valley Rideshare
- Providing reserved spaces near building entrances for carpools
- Allowing employees to work at home 1 day a week
- Providing options for telecommuting
- Establishing neighborhood commercial and mixed-use nodes within the City. As part of these developments, direct sidewalk connections and orienting buildings toward the street will provide opportunities for trips to be made via walking or cycling or short driving distances.

These types of strategies can be adopted into the Dallas Development Code in the form of requirements for new developments and incentives for employers.

The City of Dallas should continue to work with large employers to maintain existing carpool programs or establish new ones. The City has already designated small areas of Neighborhood Commercial within residential neighborhoods. The three planned nodal developments (Barberry, Wyatt, and LaCreole) will also include a mixture of residential and commercial land uses. Both of these strategies will help to reduce travel distances and allow more trips to be made on foot or by bicycle.



Dallas TSP

Figure 7-1
Proposed Roadway Classification

Dallas, OR

Legend

Existing Streets
- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local

Future Streets
- Minor Arterial
- Major Collector
- Minor Collector
- Special Transportation Area (STA)
- Recommended Urban Business Area (UBA)
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

1 inch equals 1,750 feet

0 750 1,500 3,000 Feet

CH2MHILL

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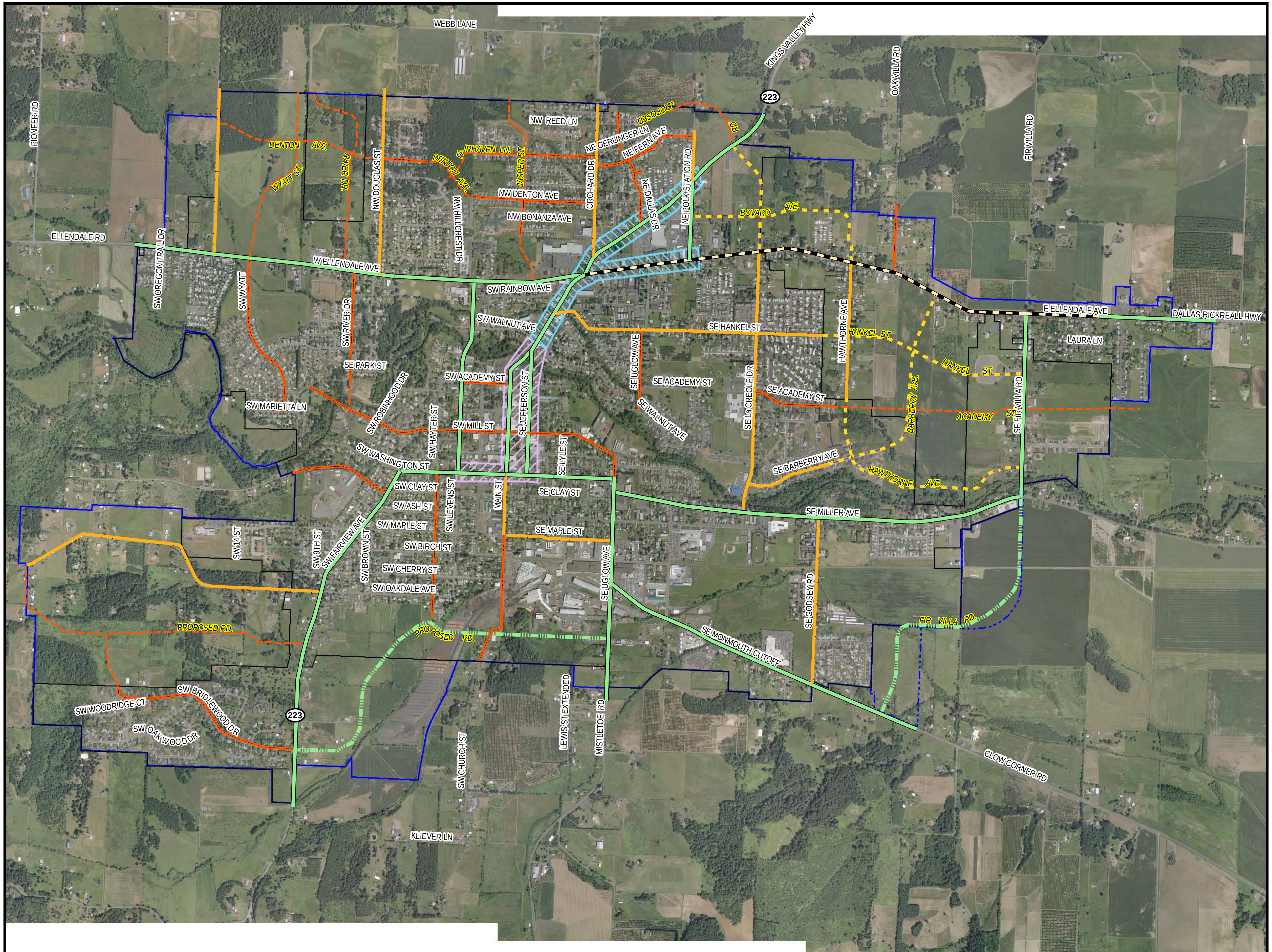
Dallas TSP

Figure 7-1
Proposed Roadway Classification

Dallas, OR



Legend

Existing Streets
- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector

Future Streets
- Minor Arterial
- Major Collector
- Minor Collector
- Special Transportation Area (STA)
- Recommended Urban Business Area (UBA)
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

1 inch equals 1,750 feet

0 750 1,500 3,000 Feet

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FIGURE 7-2
Typical Major Arterial Street Design Standard Criteria (Diagram shows 100' ROW, 5-lane configuration)

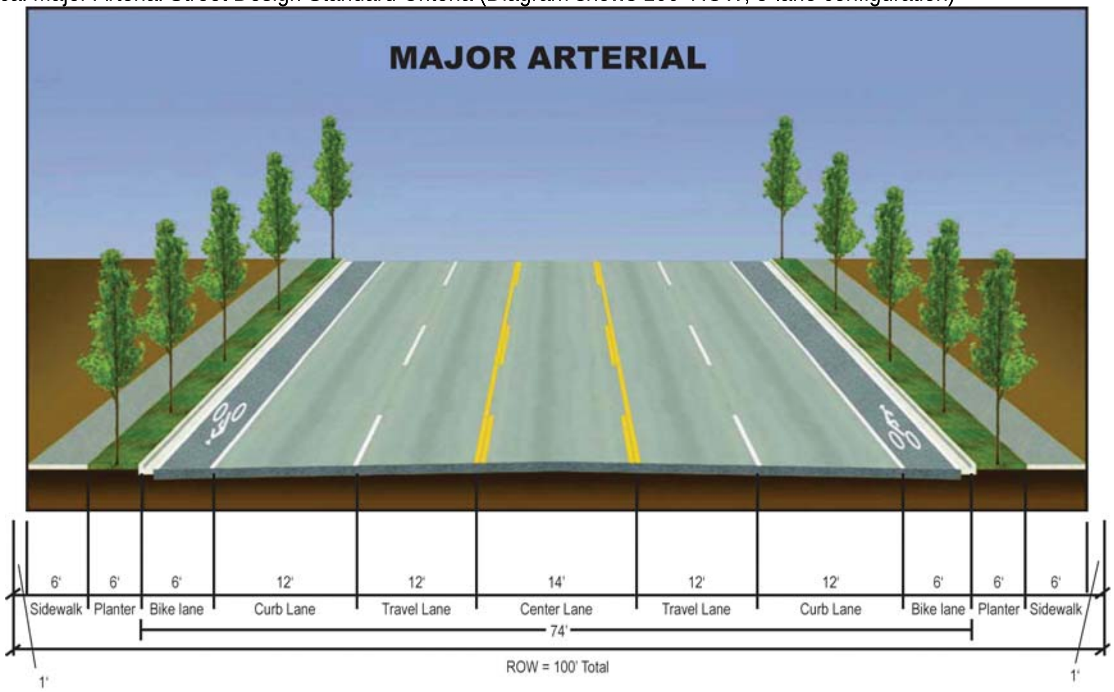


FIGURE 7-3
Typical Minor Arterial Street Design Standard Criteria (Diagram shows 80’ ROW, 3-lane configuration)

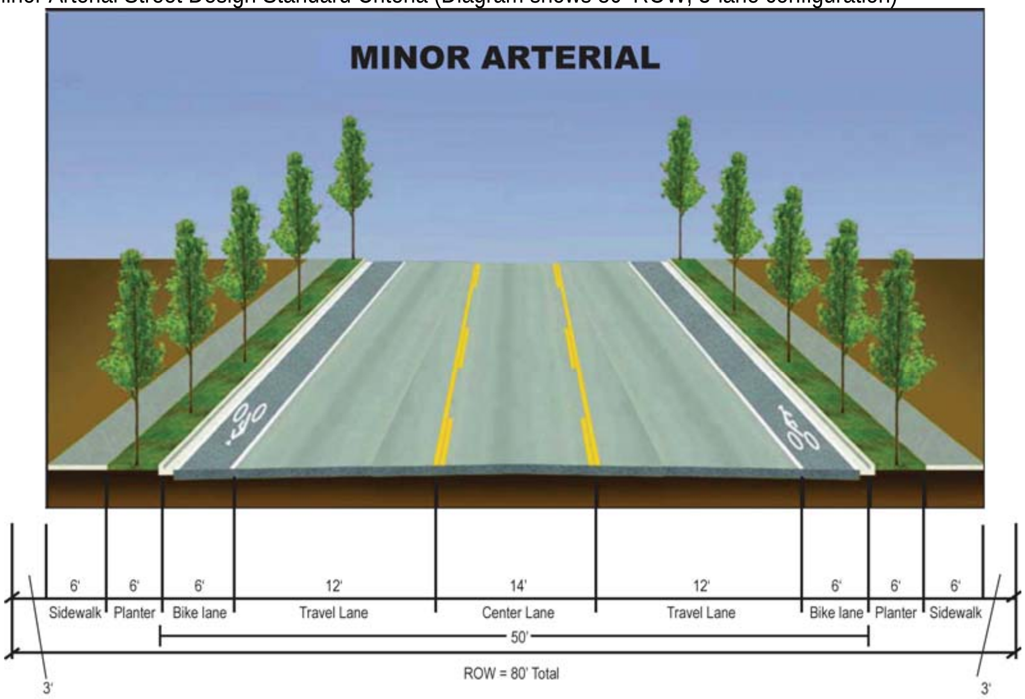
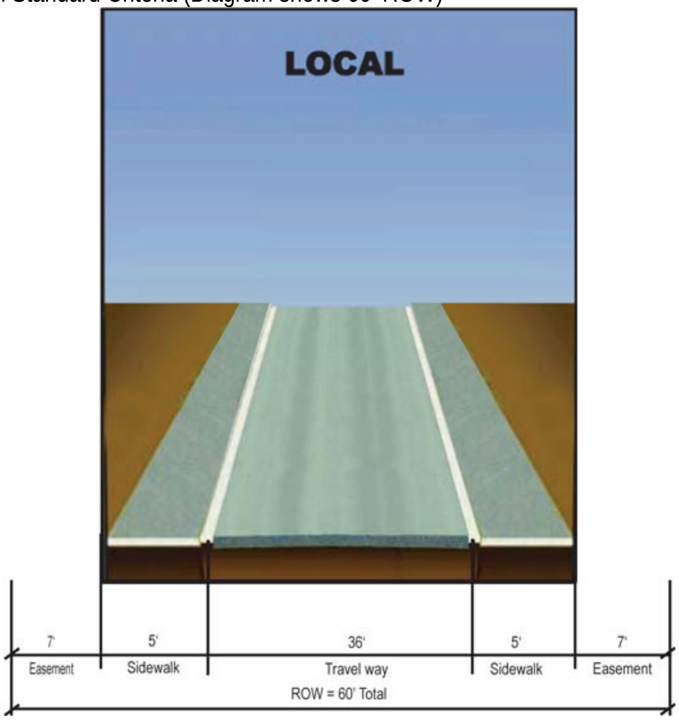
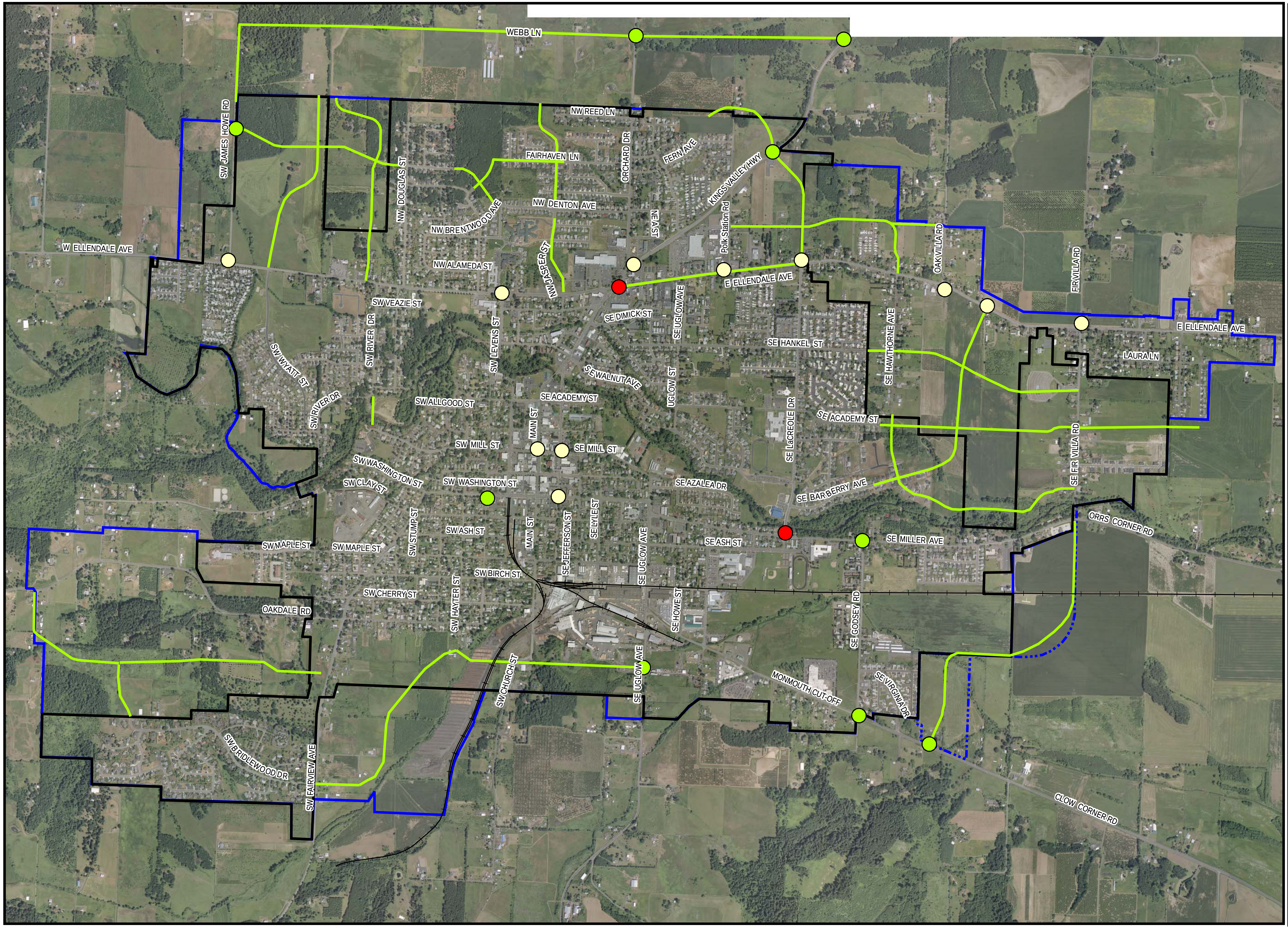


FIGURE 7-4
Typical Major Collector Street Design Standard Criteria (Diagram shows 74' ROW, 3-lane configuration)

FIGURE 7-5
Typical Minor Collector Street Design Standard Criteria (Diagram shows 70' ROW, 2-lane configuration)

FIGURE 7-6
Typical Local Street Design Standard Criteria (Diagram shows 60’ ROW)





Dallas TSP

Potential Roadway Transportation System Improvements

Figure 7-7: Alternative 2A Added Connectivity with Additional Intersection Capacity along Dallas Rickreall

Dallas, OR

Legend

- Alternative Improvements
- Rail Road
- Intersection Meets Design Mobility Standard After Roadway Improvements. No Local Intersection Improvements Needed
- Intersection Meets Design Mobility Standard with Local Intersection Improvements
- Intersection Fails to Meet Design Mobility Standard with Local Intersection Improvements
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions

N

0 1,000 2,000 Feet

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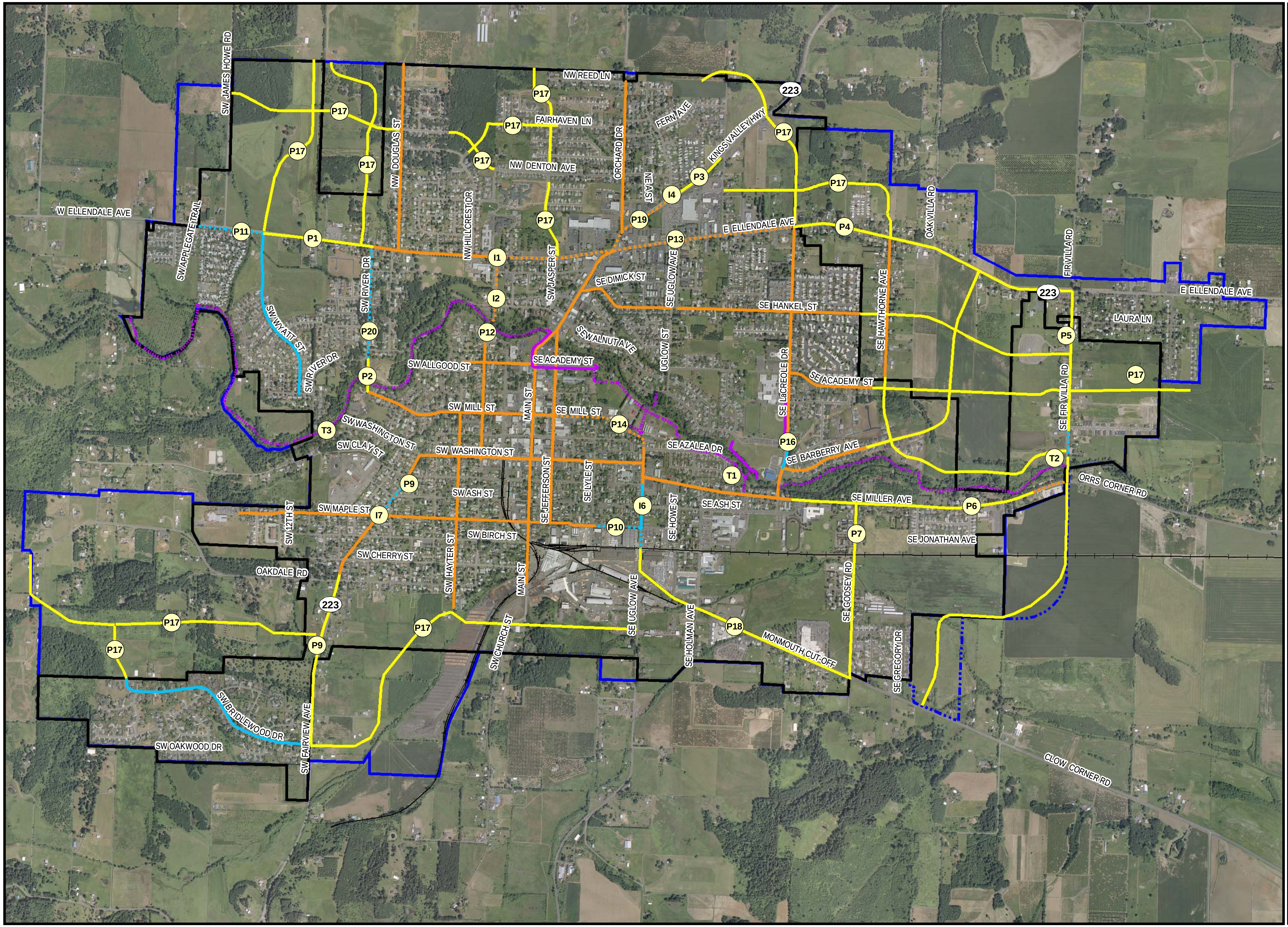

Dallas TSP

Figure 7-8: Pedestrian Network Recommendations

Dallas, OR

Legend

Existing Pedestrian Network

- Full Sidewalk
- Partial Sidewalk
- Shared Use Path

Future Pedestrian Improvements

- New Sidewalk
- Future Shared Use Path
- Partial Sidewalk Improvements
- Full Sidewalk Improvements
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions
- # See Table 7-4 *

** I=Intersection
P=Pedestrian
T=Trail*

N

0 1,000 2,000 Feet

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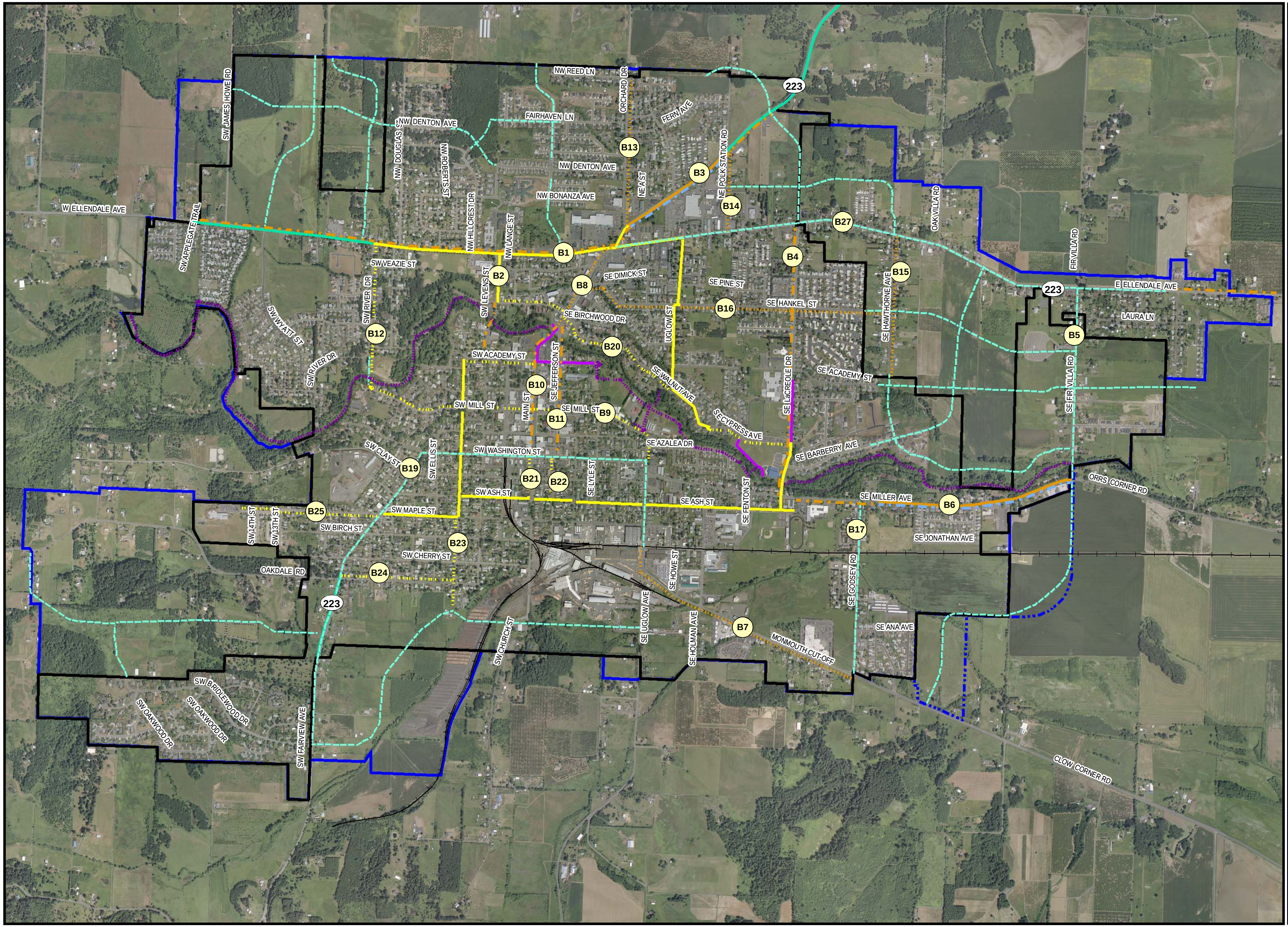

Dallas TSP

Figure 7-9: Bicycle Network Recommendations

Dallas, OR

Legend

Existing Bike Lanes

- Bike Lanes
- Shared Use Path
- Shoulder Bikeway
- Signed Bike Route

Future Bike Improvements

- Signed Bike Route
- Bike Lanes - Long Term
- Bike Lanes - Short Term
- Bike Lane Improvements
- Future Shared Use Path
- As Part of Roadway Project*
- Rail Road
- City Limits
- Urban Growth Boundary (UGB)
- UGB Expansions
- # See Table 7-5 *

* Bicycle lanes will be added to all new collector and arterial roadways.

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SECTION 8

Transportation Funding and Improvement Costs

This section discusses various funding options available to implement the TSP and strategies to finance recommended transportation improvements. These improvements are outlined at the end of Section 5 and described in more detail in Section 6. This section contains the following elements:

- Overview of the regulatory mandate to develop a financing plan for all TSP-recommended projects
- Description of existing federal, state, and local funding sources available to the City of Dallas and a brief outlook on their projected growth
- Planning-level cost estimates for each of the recommended transportation system improvements, including roadway, bicycle, and pedestrian
- Recommendations for how to phase and finance each improvement so that the TSP can be implemented in its 20-year planning timeframe

Information from this section will assist the City in preparing its future Capital Improvement Program (CIP). The CIP is a financially-constrained 6-year program outlining the City's desired capital improvement projects and identified funding sources. It is updated annually as part of the budget process. In preparing the CIP, city staff formulate recommendations based on a range of programs and identify future needs as outlined in plans such as the TSP. From this information, a prioritized list is developed and projects are placed in the CIP year that is determined to best fit the project and for which funding is expected to be available. In the annual update process, projects from the existing CIP are often carried forward, but new projects are also added and shifts in project year priorities are expected. Over time, most TSP projects are incorporated into the CIP program for work on the state roadway system or major upgrades to city streets.

Regulatory Mandate

The TPR requires that, for all areas within an urban growth boundary with a population greater than 2,500 persons, the TSP include a program identifying how to finance transportation improvement recommendations. This financing program must provide for phasing of major transportation improvements, to encourage in-fill and redevelopment in areas considered more urban, before urbanizing rural or suburban areas. The TSP is not financially constrained.

Transportation Funding Programs

This section describes the various funding programs available at a federal, state, or local level to finance transportation projects in Dallas.

Existing Federal Funding Sources

Federal funding accounts for approximately 21 percent of the funding for projects within the state of Oregon. Because the City of Dallas is outside the boundary of an MPO, federal funding is predominantly made available through state or county programs, though some funding is made available directly to the City.

The most significant sources of federal revenues are the Federal Highway Trust Fund and the Federal Forest Revenue. These are described below.

Federal Highway Trust Fund

Revenues comprising the Federal Highway Trust Fund come from motor vehicle fuel taxes, sales taxes for heavy trucks and trailers, tire taxes, and annual heavy truck use taxes. Revenues are split into two accounts—the highway account and the transit account. Funds are appropriated to individual states on an annual basis. Under the current surface transportation legislation (TEA-21), Oregon is considered a donor state, receiving only $0.92 back from the trust fund for each $1.00 contributed.

These revenues are used by the state, counties, and cities. Federal funds must be matched with state and local funds.

Federal Forest Revenues

Some federal forest revenues are used for roads, and are distributed directly to counties and earmarked for specific projects.

Existing State Funding Sources

State funds are distributed via the Oregon Transportation Commission (OTC). The two most significant funding sources are described below, as is a description of the Statewide Transportation Improvement Program, which serves as the improvement program for the state of Oregon.

State Highway Fund

Revenues in the State Highway Trust Fund are received from a combination of fuel taxes, vehicle registration and title fees, and the truck weight-mile tax. State Highway Trust Fund revenues may be used only for construction and maintenance of state and local highways, bridges, and roadside rest areas, but according to state law (ORS 366.514) reasonable amounts of the fund must be spent on walkways and bikeways as well.

Net revenues are distributed to the state, counties, and cities in the following manner:

- 60 percent state
- 24 percent counties (by number of vehicles registered)

- 16 percent cities (by population)

Revenues are appropriated by the OTC on an annual basis.

Oregon Transportation Investment Act

The Oregon Transportation Investment Act (OTIA) uses revenues from automobile and truck registration and title fees, as well as a net increase in the weight-mile tax, to finance construction bond sales. These revenues are used for construction and maintenance of state highways and bridges.

- OTIA I and OTIA II provide $2.46 billion to fix or replace state and county bridges, and modernize/repave state highways, county and city streets.
- OTIA III (2003) provides $1.3 billion to repair or replace state-owned bridges.

OTIA has provided the largest increase in state transportation funding for 50 years.

Statewide Transportation Improvement Program

The Statewide Transportation Improvement Program (STIP) is the capital improvement program for the State of Oregon. It provides a schedule and identifies funding for projects throughout the state. There are five categories—modernization, safety, bridge, pavement preservation, and operations. All federally funded transportation projects, as well as all state and locally funded projects that are deemed "regionally significant," must be included in the STIP. The current (2004-2007) STIP contains $1.35 billion of projects. Approximately 80 percent of STIP projects are federally funded.

Existing City Funding Sources

The City of Dallas has two major revenue sources—the street fund, which funds capital and maintenance projects using City-appropriated highway trust fund and other revenues, and systems development charges (SDCs). These are described below.

Street Fund

Table 8-1 provides an overview of the street fund revenue program and expenditures for the City of Dallas during the past 5 years.

TABLE 8-1
Dallas Street Fund Revenue Program and Expenditures (past 5 years)

	2001-02	2002-03	2003-04	2004-05	2005-06
		Revenues			
State Highway Appropriation	$519,819	$518,847	$550,000	$650,000	$661,500
State Highway Federal Money Reimbursement	$151,606	$0	$65,000	$100,000	$117,500
General Fund R/W Reimbursement	$52,638	$40,000	$42,000	$42,000	$42,000
Interest on Investments	$9,585	$976	$1,000	$2,500	$5,000
Miscellaneous	$908	$27,189	$0	$7,000	$7,000

TABLE 8-1
Dallas Street Fund Revenue Program and Expenditures (past 5 years)

	2001-02	2002-03	2003-04	2004-05	2005-06
		Revenues			
Materials Sold to Projects	$1,568	$587	$0	$800	$500
Transfer from Improvement Bond	$89,315	$0	$0	$0	$0
Overhead/Construction Costs	$418	$34	$0	$0	$0
Transfer from Grant Fund	$0	$174,500	$0	$0	$0
Beginning Balance	$255,923	$166,104	$146,774	$142,803	$163,103
TOTAL	**$1,081,780**	**$928,237**	**$804,774**	**$947,103**	**$996,603**
		Expenditure			
Personnel Services	$292,048	$280,128	$314,254	$298,500	$326,737
Materials and Services	$284,288	$281,140	$329,603	$315,000	$340,741
Capital Outlay	$339,340	$285,145	$73,269	$168,500	$173,850
Contingencies	$0	$0	$0	$0	$155,275
Total	**$915,676**	**$846,413**	**$717,126**	**$782,000**	**$996,603**

Revenues available for the Street Fund Revenue Program have ranged between $804,774 and $1,081,780 over the past 5 years. The revenues for the current fiscal year are $927,702. In recent years the City has used approximately 20 percent of its street budget on overlay and construction projects, though in the past this amount has been as high as 46 percent.

The more significant funding sources composing the street fund revenue program are described in turn below.

State Highway Appropriation Funds

These funds are the annual appropriation of the State Highway Funds described in the earlier section on state funding. They are largely derived from the state fuel tax revenue as well as registration, title, and heavy vehicle weight-mile tax, and licensing fees. During the past five years this revenue source has increased 12 percent, from $556,733 to $626,000. This increase took place entirely in the past fiscal year, as a result of the state sharing the new registration and licensing fees.

State Highway Federal Money Reimbursement

This revenue source is the appropriation of the Federal Highway Trust Fund revenues, distributed to cities on a basis of population. This source remains substantial for the City, though exact revenues vary greatly from year to year. For the 2004-05 fiscal year, $100,000 was estimated from this source. This amount is significantly greater than what was appropriated for the 2003-04 fiscal year ($64,000).

Right-of-Way Reimbursement (from General Fund)

Private utilities pay the City for use of its right-of-way. The sewer and water fund budgets pay a similar fee to the general fund, and the general fund then reimburses the street fund for maintenance of the right-of-way. This revenue source has remained stable since its inception during the 2001-02 fiscal year.

Other

Other revenue sources include use of interest earned on transportation-related investments, materials sold to projects, and grants received from various funds. Together these revenues have composed between $1,000 and $175,000. Typically, grants are earmarked for specific projects administered by the City.

System Development Charges

SDCs are a one-time fee assessed on new development, to compensate for increased traffic associated with the new growth area. Developers of new residential or commercial growth areas are responsible for providing adequate vehicular, bicycle and pedestrian access through their site. Owners of abutting properties pay the cost of street improvements to city standards.

Street-related SDC revenues and expenditures for the last 4 years are listed in Table 8-2.

TABLE 8-2
Dallas SDC Revenue Program and Expenditures (past 4 years)

	2002-03	2003-04	2004-05	2005-06
		Revenues		
Street SDC	$139,188	$134,380	$167,000	$169,000
Street Beginning Balance	$522,015	$580,380	$659,796	$476,800
Storm* SDC	$0	$0	$70,000	$150,000
Storm* Beginning Balance	$0	$0	$0	$20,000
Total	**$661,203**	**$714,760**	**$896,796**	**$815,800**
		Expenditure		
Street Projects	$80,824	$54,964	$350,000	$645,800
Storm* Projects	$0	$0	$50,000	$170,000
Total	**$80,824**	**$54,964**	**$400,000**	**$815,800**

* Stormwater systems are considered as part of new road system.

SDCs are structured so that revenues pay for expenditures. When revenues are low in a particular year, new streets likely were not necessary. Of note in the past 2 years is that expenditures were greater than revenues for street projects. In 2004-05, street SDCs were $167,000 though expenditures were $350,000. This trend is expected to continue during the next fiscal year.

Outlook for Existing Transportation Funding Sources

Overall, the existing transportation funding sources is expected to continue at a rate similar to the current rate. The U.S. Senate is deliberating a reauthorization of the TEA-21 surface transportation legislation for the next 6 years. The proposed funding package is between $250 and $300 billion for the upcoming 6-year period. The financing package for the TEA-21 legislation (1998-2003) was approximately $200 billion. In recent years, the City of Dallas has relied more heavily on state and federal highway tax revenues, and less heavily on overhead or miscellaneous revenues.

According to ODOT, fuel tax revenues are expected to level off in the short-term and then drop permanently, as the purchasing power of fuel revenues decreases with inflation and more fuel-efficient vehicles are purchased. For years, the state of Oregon has been considering a shift to a more user-based revenue fee system to offset decreased revenues from the fuel tax.

SDCs are expected to remain a stable funding source for the City and fees are expected to increase over time. The City regularly receives more development applications each year than available permits, meaning that the city is an attractive location for new development to occur. The current system provides a structure for new road infrastructure and improvements to be paid for by the developments that make them necessary.

Planning-Level Cost Estimates

Planning-level cost estimates were created for each of the recommended transportation improvement projects described in Section 7. This section provides a summary of these cost estimates; Appendix A contains the planning-level cost estimate for each individual project.

Table 8-3 organizes the recommended improvements by type (roadway, bicycle, or pedestrian).

TABLE 8-3
Cost Estimate for Proposed Transportation Improvements—by Type of Improvement

Project Type	Estimated Capital Cost
Short-Term (Next Ten Years)	
Roadway Improvements	$2,821,000
New Roadways	$14,910,000
Bicycle	$553,500
Pedestrian	$7,204,000
Total	$25,488,500
Ten to Fifteen Years	
Roadway Improvements	$0
New Roadways	$6,750,000
Bicycle	$61,700
Pedestrian	$1,938,000

TABLE 8-3
Cost Estimate for Proposed Transportation Improvements—by Type of Improvement

Project Type	Estimated Capital Cost
Total	$8,749,700
Fifteen to Twenty Years	
Roadway Improvements	$1,060,000
New Roadways	$15,370,000
Bicycle	$246,000
Pedestrian	$5,570,000
Total	$22,246,000
Grand Total	**$56,484,200**

As shown in Table 8-3, many of the improvements would be constructed either in the short-term (next 10 years) or in the long-term (next 15-20 years). Furthermore, much of the project cost consists of new roadways. As described in the next section, funding sources for new roadways include SDCs, and the possible public vote to institute a LID or General Obligation Bond.

The other element that makes up a significant percentage of the project cost is the construction of new sidewalks or sidewalk improvements. These projects are more cost effective when combined with a larger roadway improvement project.

Table 8-4 organizes the project improvements by the owning jurisdiction – the city, county, or state.

TABLE 8-4
Cost Estimate for Proposed Transportation Improvements—by Owning Jurisdiction

Owning Jurisdiction	Estimated Capital Cost
Short-Term (Next Ten Years)	
City	$22,728,500
County	$0
State	$2,760,000
Total	$25,488,500
Ten to Fifteen Years	
City	$7,449,700
County	$0
State	$1,300,000
Total	$8,749,700
Fifteen to Twenty Years	
City	$13,507,000
County	$5,990,000
State	$2,749,000

TABLE 8-4
Cost Estimate for Proposed Transportation Improvements—by Owning Jurisdiction

Owning Jurisdiction	Estimated Capital Cost
Total	$22,246,000
Grand Total	**$56,484,200**

Although many of the recommended improvements are located along city-owned collector or arterial streets, a significant portion ($6 million for County, $6.7 million for State) are not projects on the city's street network. Furthermore, the vast majority of project costs on city streets are to build new roads. Many of these new infrastructure projects will be funded through SDCs, though additional funding sources will need to be identified to fund others. Potential funding sources are described in the following section.

Potential Funding Strategies

The total cost of projects recommended in this TSP is approximately $56 million. Over the timeframe of this TSP, this figure represents an annual appropriation of $2.75 million. While this figure is far greater than the total street fund and SDC budget combined for FY 2005-06 it is not an unreasonable target when considered with the anticipated growth, increases in fees over the planning horizon and mixture of federal, state, county and local sources that can be contributed to fund plan recommendations.

This section organizes the projects listed above by potential funding source.

Local Sources

Transportation System Development Charges and Developer Fees

More than 1/3 of the total roadway improvement costs are recommended to serve future development in Dallas, as shown in Table 8-5. Most of this development is expected to occur in the three mixed use nodes. These roadway improvements are expected to be funded through a mixture of SDCs and developer costs.

TABLE 8-5
Improvements with Recommended Funding through SDC Program and Local Developer Fees

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction	Relevant Node
	Next Ten Years			
B/P/R	Extend Hawthorne Avenue south to Barberry Avenue	$510,000	City	Barberry
B/P/R	Extend Hankel Street east to Fir Villa Road	$1,720,000	City	Barberry
B/P/R	Extend Academy Street east to city limits	$2,760,000	City	Barberry
B/P/R	Extend Barberry Avenue east to Fir Villa Road	$2,030,000	City	Barberry

TABLE 8-5
Improvements with Recommended Funding through SDC Program and Local Developer Fees

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction	Relevant Node
R	Signalize Dallas-Rickreall Highway and Barberry Avenue	$240,000	City/State	Barberry
B/P/R	Extend Hawthorne Avenue north to connect with new east-west circulation road	$460,000	City	LaCreole
B/P/R	Extend LaCreole Drive north to Kings Valley Highway	$960,000	City	LaCreole
B/P/R	Build new east-west circulation road connecting Polk Station Road and Hawthorne Avenue	$1,340,000	City	LaCreole
R	Add southbound left turn lane to W Ellendale Avenue and James Howe Road	$120,000	City	Wyatt
B/P/R	Extend Wyatt Street north to city limits	$1,600,000	City	Wyatt
B/P/R	Extend Jasper Street north to city limits	$1,670,000	City	Wyatt
B/P/R	Extend River Drive north to city limits	$1,770,000	City	Wyatt
B/P/R	Create east-west connector road from James Howe Road to Denton Avenue and Fairhaven Lane	$1,190,000	City	Wyatt
	Fifteen to Twenty Years			
B/P/R	New connector west from Fairview Avenue to serve southwest quadrant city	$4,640,000	City	N/A
Total		**$21,010,000**		

According to City of Dallas Development Code, the developer is responsible for that portion of new roadway required by the development, including 36 feet of roadway plus curb and sidewalk. Based on the recommended cross-sections for major and minor collector roads, this amounts to approximately 2/3 of total costs to build a new roadway (approximately $14 million).

The remainder comes from SDCs and other sources. It is recommended that residential SDCs be increased to $2,000/permit, which would bring in approximately $5 million over the 20 year planning horizon. Assuming that commercial SDCs remain at the same rate, and that available commercial land is developed (see Section 5), another $13 million is expected to be available for transportation projects from commercial SDCs. Commercial and residential SDCs would be sufficient to cover the leftover costs from building the recommended new roadway network.

All new road projects associated with the three mixed-use nodes are expected to be constructed in the short-term (within the next 10 years), with the new road in the southwest quadrant of Dallas expected for the medium-term (within 15-20 years).

Park System Development Charges

The multi-use Rickreall Creek trail project could be paid for using Park SDC funds. It is recommended that park SDC funds be increased to $1,000/building permit to help fund this effort. This is estimated to generate an average of $125,000/year, or a total of $2.5 million over the 20-year time period.

TABLE 8-6
Rickreall Creek Trail Costs

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
	Next Ten Years		
B/P	Rickreall Creek Multi-Use Trail from Levens to LaCreole	$640,000	City
	15-20 Years		
B/P	Rickreall Creek Multi-Use Trail from LaCreole to Fir Villa	$640,000	City
B/P	Rickreall Creek Multi-Use Trail from Levens to western city limits	$1,090,000	City
Total		**$2,370,000**	

Although, as shown in Table 8-6, this is sufficient to cover the costs of the Rickreall Creek trail it would not allow for funding of other park projects. Therefore, it is recommended that the City look for some grant funding from the ODOT Bike and Pedestrian Grant Program or other similar programs to cover part of the Rickreall Creek Trail costs.

Local Improvement Districts

Local Improvement Districts (LIDs) are created by property owners within a district of the City to raise revenues for constructing street improvements within the same district. Property owners typically enter into LIDs because they see economic advantage to the improvements. The City works with the property owners to acquire financing at lower interest rates than under typical financing methods.

LIDs could be an appropriate funding source for the extension of Fir Villa Road south to Monmouth Cutoff, where the industrial businesses are likely to see economic advantage from the improvement project.

LIDs could be implemented to fund new connector roads that will benefit one or more groups of property owners at a higher rate than the City as a whole.

Revenue and General Obligation Bonds

General Obligation Bonds could be instituted to pay for construction of large capital improvements. General Obligation Bonds add the cost of the improvement to property taxes over a period of time. A double majority voter approval is required for instituting General Obligation Bonds.

Street Utility Fees

Street Utility Fees charge individuals for use of the street, with revenues going towards maintenance and preservation of the street. These fees are typically attributed to each property based on the projected number of trips generated by the individual taxlot. Fees are administered in a similar fashion to other utilities (for example, sewer, water, electricity). Several cities in Oregon have implemented this system, including Grants Pass, Ashland, Medford, Wilsonville, and Philomath. Some jurisdictions add the fee onto existing utility bills to minimize additional administrative costs.

Although much of the revenue from Street Utility Fees is expected to go to maintenance of the roadway network, some could go to capital improvement projects. Furthermore, the institution of this fee could make available some of the street fund revenue that currently goes towards maintenance.

Table 8-7 lists a number of projects that could be funded through LIDs, General Obligation Bonds, or Street Utility Fees.

TABLE 8-7
Improvements with Recommended Funding through LIDs, Bonds, or Street Utility Fees

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction	Potential LID
	Next Ten Years			
R	Change stop control to a four-way stop at Miller Avenue and Fir Villa Road	$1,000	City	Y
	10-15 Years			
B/P/R	Extend Fir Villa Road south to Monmouth Cut-Off	$3,030,000	City	Y
B/P/R	Extend River Drive south across Rickreall Creek, connecting to Mill street	$1,080,000	City	N
B/P/R	Extend Fern Avenue east to Kings Valley Highway	$410,000	City	N
	15-20 Years			
B/P/R	Add new connector from Fairview Avenue east to provide access to Mill to/from the south	$1,850,000	City	Y
B/P/R	Add new connector from behind Weyerhaeuser Mill east to Uglow Avenue	$2,480,000	City	Y
Total		**$8,851,000**		

Several of the projects listed above would benefit the industrial businesses located around Monmouth Cut-Off Road in the south end of the City. The City could analyze the possibility of forming a LID with these property owners to construct improvements that would provide great benefit to truck mobility and safety.

Urban Renewal Districts

Urban Renewal Districts are formed in selected areas of the City, where property owners are assessed Tax Increment Financing (TIF), dependent on property values, over a period of time. TIF revenues are used to finance revitalization improvements (not limited to transportation) within the district.

The City of Dallas has formed an Urban Renewal District for the downtown area, bordered on the north by Hankel, on the south by Clay, on the east by Jefferson (including taxlots on the east side of Jefferson) and on the west by Church (including tax lots on the west side of Church). Improvements are not limited to transportation. Transportation improvements, including streetscape improvements, mobility improvements, and bicycle/pedestrian improvements, could potentially be funded through TIF funds. See Table 8-8.

TABLE 8-8
Improvements with Recommended Funding through Urban Renewal Funds

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
	Next Ten Years		
B/P/R	Streetscape Improvements (from Urban Renewal Plan)*	$3,125,000	City
B	Construct bicycle lanes on Main Street from W Ellendale Avenue to north end of couplet	$13,000	City
B	Add bicycle route signs on Mill Street from Washington Street to River Drive	$4,700	City
B	Stripe bicycle lanes on Main Street from north end of couplet to Washington Street	$8,100	City
B	Construct bicycle lanes on Jefferson Street from north end of couplet to Washington Street	$18,000	City
B	Add bicycle route signs on Walnut Avenue from Levens Street to LaCreole Drive	$3,000	City
B	Add bicycle route signs on Main Street from Washington Street to Ash Street	$400	City
B	Add bicycle route signs on Jefferson Street from Washington Street to Ash Street	$400	City
	10-15 Years		
B	Add bicycle route signs on River Drive from W Ellendale Avenue to Mill Street	$1,200	City
Total		**$3,173,800**	

* Streetscape improvements listed here were recommended in the Downtown Dallas Urban Renewal Plan, August 16, 2004.

It is recommended that the City pursue the use of urban renewal funds to fund streetscape improvements and certain bicycle projects in the downtown core.

County Sources

County projects recommended as part of the Dallas TSP include the Webb Lane extension project and an extension of James Howe Road north from the city limits to Webb Lane. These projects are both included in the Polk County TSP. Financing mechanisms recommended as part of the County TSP include state highway funds, LIDs, SDCs, and a variety of grants (including the Immediate Opportunity Grant program, the Special Works Public Works fund, the Oregon Transportation Infrastructure Bank, and the Community Transportation Program).

The Dallas TSP recommends that the County pursue three projects north of the Dallas city limits. It is expected that the County would fully fund these projects. See Table 8-9.

TABLE 8-9
Improvements with Recommended Funding through County Funds

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
	15-20 Years		
B/P/R	Extend Webb Lane to Kings Valley Highway	$4,990,000	County
B/P/R	Extend Wyatt Street north from city limits to Webb Lane	$500,000	County
B/P/R	Extend Jasper Street north from city limits to Webb Lane	$500,000	County
Total		**$5,990,000**	

Federal and State Sources

Those modernization or preservation projects recommended in the TSP along the state highway facilities would be eligible for state or federal funds, through the following sources.

Federal Highway Trust Fund
State Highway Trust Fund

Improvements along the two state highways within the project area, and specifically improvements along Dallas Rickreall Highway and in the vicinity of the north Dallas intersection, are possible candidates for STIP funding.

Oregon Transportation Investment Act

If future OTIA programs are approved by the Oregon State Legislature, the City of Dallas could coordinate with ODOT to fund roadway improvement projects recommended in the Dallas TSP using future OTIA funds. Spot intersection capacity improvements along the Dallas Rickreall Highway could be good candidates for future OTIA funding.

Table 8-10 lists a number of recommended projects located on the state highways in the study area. The City is recommended to coordinate with ODOT and the regional Area Commission on Transportation (ACT) to procure funding for these projects.

TABLE 8-10
Improvements with Recommended Funding through Highway Trust Fund or Future OTIA

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
	Next Ten Years		
R	Signalize and add eastbound left turn lane to Washington Street and Jefferson Street	$350,000	City/State
R	Signalize Mill Street and Main Street	$240,000	City/State
R	Signalize Mill Street and Jefferson Street	$240,000	City/State

TABLE 8-10
Improvements with Recommended Funding through Highway Trust Fund or Future OTIA

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
R	Add northbound left turn lane and eastbound and westbound through lanes, also change the northbound left to lagging protected/permitted at Dallas-Rickreall Highway and LaCreole Drive	$590,000	City/State
R	Signalize and add eastbound and westbound through lanes to Dallas-Rickreall Highway and Fir Villa Road	$470,000	City/State
R	Add eastbound and westbound through lanes to Dallas-Rickreall Highway and Oak Villa Road	$230,000	City/State
R	Add eastbound and westbound through lanes to Dallas-Rickreall Highway and Polk Station Road	$230,000	City/State
R	Signalize and add westbound left turn lane to W Ellendale Avenue and Levens Street	$350,000	City
	10-15 Years		
B/P/R	Widen Dallas Rickreall Highway to include two through lanes in each direction between the North Dallas Intersection and LaCreole Drive	$1,300,000	City/State
	15-20 Years		
R	Add eastbound right, westbound right, southbound right turn lanes and eastbound and westbound through lanes to North Dallas Intersection	$710,000	City/State
R	Signalize and add eastbound left turn lane to Kings Valley Highway and Orchard Drive	$350,000	City/State
Total		**$5,060,000**	

ODOT Bicycle and Pedestrian Program

ODOT's Pedestrian and Bicycle Program awards grants on an annual basis to construct improvements that will make bicycle and pedestrian travel easier and safer. Grants awarded for the FY 2006-07 amounted to just under $5 million, on the whole funding about 2/3 of the total project cost. Any of the bicycle or pedestrian improvements recommended as part of the Dallas TSP would be eligible for these grants. Grant applications would likely be submitted to ODOT from the City.

Table 8-11 describes the bicycle and pedestrian projects that are recommended in the TSP and are eligible for ODOT Bicycle and Pedestrian Program funds. All projects receiving funding from this program are expected to receive a local match.

In addition, the City could seek to fund some of these projects through local programs such as property owner programs or developer charges.

TABLE 8-11
Improvements with Recommended Funding through ODOT Bicycle and Pedestrian Program and Local Sources

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
	Next Ten Years		
P	Construct new sidewalk on south side of Ellendale Avenue from Wyatt to River Drive	$430,000	City
P	Construct new sidewalk on south side of Kings Valley Highway from North Dallas Intersection to Wal-Mart	$170,000	City/State
P	Construct new sidewalk on Miller Road from just east of LaCreole to just west of Fir Villa	$960,000	City
P	Construct new sidewalk on Godsey Road from Monmouth Cut-Off to Miller Avenue	$690,000	City
P	Construct new sidewalk on Maple Street from Lyle Street to Uglow Avenue	$130,000	City
P	Widen and improve sidewalk condition and upgrade curb ramps on Levens Street from W Ellendale Avenue to Rickreall Creek	$350,000	City
P	Improve sidewalk condition, upgrade curb ramps and fill in missing segments of sidewalk on Mill Street between Jefferson Street and Uglow Avenue	$400,000	City
P	Fill in sidewalk segment and upgrade curb ramps on Fairview Avenue between Clay Street and Maple Street	$190,000	City
P	Enhance mid-block crossings at Levens and Ellendale with curb extensions	$5,000	City
P	Construct a mid-block crossing at Dallas Drive and King's Valley Highway with raised pedestrian refuge, illumination and a marked crosswalk would improve connections from the neighborhood to the Wal-Mart.	$100,000	City
P	Install curb extensions and a marked crosswalk at Ash and Uglow to help bicycle route users and school children cross Uglow to connect schools and neighborhoods	$7,000	City
P	Install curb extensions and a marked crosswalk at Maple and Fairview to help bicycle route users and school children cross Fairview to connect schools and neighborhoods	$7,000	City
B	Construct bicycle lanes on W Ellendale Avenue from western city limits to North Dallas Intersection	$270,000	City
B	Construct bicycle lanes on Levens Street from W Ellendale Avenue to Academy Street	$16,000	City
B	Stripe bicycle lanes on both sides of Kings Valley Highway from W Ellendale Avenue to Orchard Drive and on north side from Orchard Drive to city limits	$8,100	City
B	Construct bicycle lanes on LaCreole Drive from W Ellendale Avenue to Miller Avenue	$39,000	City
B	Stripe bicycle lanes on Miller Avenue from	$170,000	City

TABLE 8-11
Improvements with Recommended Funding through ODOT Bicycle and Pedestrian Program and Local Sources

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
	LaCreole Drive to Fir Villa Road		
B	Add bicycle route signs on Hayter Street from Maple Street to Oakdale Avenue	$600	City
B	Add bicycle route signs on Oakdale Avenue from Hayter Street to Fairview Avenue	$1,000	City
B	Add bicycle route signs on Maple Street from Fairview Avenue to terminus of Maple Street	$1,200	City
	10-15 Years		
P	Construct new sidewalk on the south side of King's Valley Highway from Wal-Mart to Polk Station Road and on the north side from 100' east of Dallas Drive to Polk Station Road	$250,000	City
P	Construct new sidewalk on the north side of W Ellendale Avenue from Wyatt Street to city limits	$130,000	City
P	Widen sidewalk and add landscaping buffer on W Ellendale Avenue between LaCreole Drive and Levens Street.	$1,540,000	City
P	Fill in sidewalk segment on east side of LaCreole Drive between Walnut Avenue and Barberry Avenue	$18,000	City
B	Stripe bicycle lanes on Orchard Drive from Kings Valley Highway to city limits	$8,600	City
B	Stripe bicycle lanes on Polk Station Road from Kings Valley Highway to Dallas Rickreall Highway	$4,700	City
B	Add bicycle route signs on Hawthorne Avenue from Dallas Rickreall Highway to Barberry Avenue	$1,200	City
B	Stripe bicycle lanes on Hankel Street from Hawthorne to Main Street	$46,000	City
	15-20 Years		
P	Construct new sidewalks on Fairview Avenue from Oakdale Road to Bridlewood Drive	$690,000	City
P	Construct new sidewalks on Monmouth Cut-Off from Maple Street to Godsey Road	$1,020,000	City
P	Construct new sidewalks on Fir Villa Road from Dallas-Rickreall to existing sidewalk	$550,000	City
P	Construct new sidewalk on Dallas-Rickreall Highway from LaCreole Drive to Fir Villa Road	$1,140,000	City/State
P	Construct sidewalk on River Drive from Rickreall Creek bridge to W Ellendale Avenue	$440,000	City/State
B	Construct bicycle lanes on Dallas Rickreall Highway from LaCreole to eastern city limits	$43,000	City/State
B	Construct bicycle lanes on Fir Villa Road from Dallas Rickreall Highway to Miller Avenue	$74,000	City

TABLE 8-11
Improvements with Recommended Funding through ODOT Bicycle and Pedestrian Program and Local Sources

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
B	Construct bicycle lanes on Monmouth Cut-Off Road/Uglow Avenue from Mill Street to city limits	$38,000	City
B	Construct bicycle lanes on Godsey Road from Miller Avenue to Monmouth Cut-Off	$25,000	City
B	Construct bicycle lanes on Washington Street and Fairview Avenue from Jefferson Street to city limits	$66,000	City/State
Total		**$10,029,400**	

Bicycle and pedestrian projects may also be eligible for additional grants, such as transportation enhancement funds or congestion mitigation/air quality (CMAQ) funds, which are managed at the federal level.

Implementation

As mentioned in the beginning, the funding information included in the previous section is intended to assist the City as it develops a prioritized list of projects and expected funding for future CIPs. Over time, most of the recommended TSP projects are expected to be included into the CIP program for work on the state roadway system or the city arterial and collector system.

SECTION 9

Implementing Ordinances

This section presents recommended changes to the City of Dallas Development Code (DDC) in order to comply with implementation provisions in the Oregon Transportation Planning Rule (TPR) as codified in Oregon Administrative Rule (OAR) 660-012-045.

Overview

The TPR (OAR 660 Division 12) implements Oregon's Statewide Planning Goal 12 (Transportation) and promotes the development of safe, convenient, and economic transportation systems that reduce reliance on automobile travel. TPR Section 660-012-0045(1) requires that "Each local government shall amend its land use regulations to implement the TSP."

Recommended changes are based on a review of the DDC for consistency with the TPR conducted as part of the Dallas Transportation System Plan (TSP) and Policy Review during July 2004. The *Model Development Code and User's Guide for Small Cities* (Transportation and Growth Management Program, ODOT, Oregon Department of Land Conservation and Development, 1999) was used for reference.

The discussion of recommended changes is organized by (1) the applicable section(s) of the TPR that prompts a change in the DDC, (2) the recommended additions, deletions, or revisions to the DDC, and (3) a brief description of the recommended change. TPR Code sections are shown in *Italics Arial Font* and DDC code is shown in Arial Narrow Font. Recommendations are presented with deletions shown in ~~strikethrough format~~ and additions shown in <u>underlined format</u>.

The revised code language has been developed to meet TPR requirements based on the City of Dallas' existing regulatory framework. This section only addresses those provisions of OAR 660-12-0045 with which the DDC is not consistent.

Summary of Recommendations

Table 9-1 summarizes the DDC sections recommended for revision to meet TPR requirements.

TABLE 9-1. DALLAS DEVELOPMENT CODE SECTIONS RECOMMENDED FOR REVISION FOR TPR COMPLIANCE.

DDC Section	Relevant TPR Section	Reason for Recommended Revision
Chapter 1.2 (Definitions)	660-12-0045(1)(b) 660-12-0045(2)(a)	Clarification of Transportation Facilities and Improvements; Access Management Definitions
1.3.10(3)	660-12-0045(1)(c) 660-12-0045(2)(f)	Ensure coordinated, consolidated review of land use/transportation applications & decisions
1.3.60(4),(5),(6)	660-12-0045(1)(c) 660-12-0045(2)(f)	Ensure coordinated, consolidated review of land use/transportation applications & decisions
Table 2.2.1	660-12-0045(1)(b)	Addition of permitted transportation uses
Table 2.3.1	660-12-0045(1)(b)	Addition of permitted transportation uses
Table 2.4.1	660-12-0045(1)(b)	Addition of permitted transportation uses
Table 2.5.1	660-12-0045(1)(b)	Addition of permitted transportation uses
Table 2.6.1	660-12-0045(1)(b)	Addition of permitted transportation uses
3.2.30(5); 3.2.30(5)(c)	660-12-0045(2)(b) 660-12-0045(2)(g)	Application of Traffic Operations Performance Standards
3.3.40	660-12-0045(1)(b)	Expiration for Transportation Conditional Use Permit
3.4.40(4)	660-12-0045(1)(b)	Transportation Facility Conditional Use Criteria
3.3.50(5)(a)	660-12-0045(2)(b) 660-12-0045(2)(g)	Application of Traffic Operations Performance Standards
3.3.50(12)	660-12-0045(2)(b) 660-12-0045(2)(g)	Application of Traffic Operations Performance Standards
3.7.30(7)	660-12-0045(2)(g)	Addition of TIA requirements; Definition of significant affect on transportation facility
3.7.40(1)(b)(iii)	660-12-0045(2)(b) 660-12-0045(2)(g)	Application of Traffic Operations Performance Standards
3.7.40(2)	660-12-0045(2)(b) 660-12-0045(2)(g)	Reference to TSP for Comprehensive Plan map and street designation amendments
3.7.40(3)	660-12-0045(2)(g)	Addition of Criteria for Amendments Significantly Affecting Transportation Facilities
3.7.40(4)	660-12-0045(2)(g)	TPR Compliance for Amendments Significantly Affecting Transportation Facilities
3.8.70(15)(c)	660-12-0045(2)(b) 660-12-0045(2)(g)	Application of Traffic Operations Performance Standards
3.9.90(2)	660-12-0045(2)(b)	Addition of references to TSP

TABLE 9-1. DALLAS DEVELOPMENT CODE SECTIONS RECOMMENDED FOR REVISION FOR TPR COMPLIANCE.

	660-12-0045(2)(g)	
3.9.90(3)	660-12-0045(2)(b)	Addition of references to TSP
	660-12-0045(2)(g)	
4.2.20	660-12-0045(6)	Reference to Project List in TSP
4.2.30(16)	660-12-0045(2)(a)	Access Spacing Standards
	660-12-0045(2)(b)	
	660-12-0045(2)(g)	
4.2.30(17)	660-12-0045(2)(a)	Number of Access Points
	660-12-0045(2)(b)	
4.2.30(18)	660-12-0045(2)(a)	Shared Driveways Provisions
	660-12-0045(2)(b)	
4.2.40(7); 4.2.40(7)(a)	660-12-0045(3)(b)	Changes to Street Standards, including bicycle facilities
	660-12-0045(3)(c)	
	660-12-0045(7)	

Recommendations

I. OAR 660-12-0045(1)(b)

Each local government shall amend its land use regulations to implement the TSP.

To the extent, if any, that a transportation facility, service or improvement concerns the application of a comprehensive plan provision or land use regulation, it may be allowed without further land use review if it is permitted outright or if it is subject to standards that do not require interpretation or the exercise of factual, policy or legal judgment.

Dallas Development Code Changes

To comply with TPR requirement 660-12-0045(1)(b), the following changes are proposed to the DDC sections identified below regarding single-family residential zoning districts, multi-family residential zoning districts, commercial zoning districts, industrial zoning districts, and park & open space zoning districts. These changes permit transportation facilities and improvements outright when their nature does not require conditional use review, streamlining the permitting process.

Chapter 1.2. DEFINITIONS.

- Transportation Facilities and Improvements. The physical improvements used to move people and goods from one place to another; i.e., streets, sidewalks, pathways, bike lanes, transit stations and bus stops, etc.). Transportation improvements include the following:

  -Normal operation, maintenance, repair, and preservation activities of existing transportation facilities.

  -Installation of culverts, pathways, medians, fencing, guardrails, lighting, and similar types of improvements within the existing right-of-way.

  -Projects specifically identified in the City's adopted Transportation System Plan as not requiring further land use review and approval.

  -Landscaping as part of a transportation facility.

  -Emergency measures necessary for the safety and protection of property.

  -Construction of a street or road as part of an approved subdivision or partition as designated in the City's adopted Transportation System Plan.

  -Construction of a street or road as part of an approved subdivision or land partition approved consistent with the applicable land division ordinance.

2.2.40 USES ALLOWED IN SINGLE FAMILY ZONING DISTRICTS.

Table 2.2.1 identifies permitted outright, limited (permitted under prescribed conditions) and conditional (discretionary) uses that may be allowed within Single Family Residential zoning districts. Uses are subject to the special use standards of Section 2.2.50.

Table 2.2.1: Single-Family Zones – Permitted, Limited and Conditional Uses

Use/Zoning District	RA	RS	RSL	Development Review?	Review Type
Commercial Nursery, Garden, Orchard (1)	L	L	X	No	I
Produce Sale (1)	L	X	X	No	I
Livestock (2)	L	X	X	No	I
Accessory Structures (3)	P	P	P	No	I
Single Family Detached Dwelling (4)	P	P/L	P/L	Yes if lot less than 6,000 square feet	I
Row House (5)	X	L	L	Yes	II
Zero-Lot Line Dwelling (6)	X	L	L	Yes	II
Duplex (7)	X	C	C	Yes	III
Hardship Manufactured Dwelling (8)	C	C	C	Yes	I
Manufactured Dwelling Park (9)	X	X	L	Yes	II
Manufactured Home on Individual Lot (10)	L	L	L	Yes	I
Land Divisions (11)	L	L	L	Yes	III
Major Public Facility (12)	C	C	C	Yes	III
Assisted Living Facility (13)	C	C	L	Yes	III
Residential Home (13)	P	P	P	No	I
Residential Facility (13)	C	C	C	Yes	III
Government and Community Service Uses (14)	C	C	C	Yes	III
Home Occupation (15)	L	L	L	Yes	II
Accessory Dwelling Unit on Existing Lots (16)	C	C	C	Yes	III
Detached Accessory Structures (17)	P	P	P	Yes	I

Planned Developments (18)	C	C	C	Yes	III
Transportation Facilities and Improvements: -Normal Operation and Maintenance -Installation of Improvements Within the Existing Right-Of-Way -Projects Identified in the Adopted Transportation System Plan not Requiring Future Land Use Review and Approval -Landscaping as Part of a Transportation Facility -Emergency Measures -Street or Road Construction as Part of an Approved Subdivision or Partition	P	P	P	No	I
Transportation Projects that are Not Designated Improvements in the Transportation System Plan	L	L	L	Yes	III
Transportation Projects that are Not Designed and Constructed as Part of an Approved Subdivision or Partition	C	C	C	Yes	III

Key:

X Prohibited
C Conditional Use
L Limited
P Permitted

See Special Use Standards in Section 2.2.50, below.

2.3.40 USES ALLOWED IN MULTIPLE FAMILY ZONING DISTRICTS.

Table 2.3.1 identifies permitted and conditional (discretionary) uses that may be allowed within Multiple Family Residential zoning districts.

Table 2.3.1: Multiple Family Districts – Permitted, Limited, Conditional Uses

Use/Zoning District	RMD	RHD	Development Review	Review Type
Commercial Nurseries, Gardens, Orchards	P	X	No	I
Single Family Detached and Zero-lot Line (2)	L	L	Yes	I
Row Houses and Duplexes/MF (3)	L	L	Yes	II
Apartment House (4)	P	P	Yes	I
Major Public Facilities (5)	C	C	Yes	III
Manufactured Dwelling Park (6)	P	P	Yes	II
Fraternal Organizations (7)	C	C	Yes	III
Assisted Living Facility (8)	C	C	Yes	III
Residential Home (8)	L	L	Yes	II
Residential Facility (8)	P	P	Yes	II
Land Divisions (9)	P	P	Yes	III
Community Service Uses (10)	C	C	Yes	III
Ground Floor Retail and Service Uses (11)	C	C	Yes	III
Accessory Dwelling Unit on Existing Lots (12)	C	C	Yes	III
Other Accessory Structures (13)	L	L	Yes	I,II,III
Home Occupation (14)	L	L	Yes	II
Planned Development (15)	C	C	Yes	III
Transportation Facilities and Improvements: -Normal Operation and Maintenance -Installation of Improvements Within the Existing Right-Of-Way	P	P	No	I

Use/Zoning District	RMD	RHD	Development Review	Review Type
-Projects Identified in the Adopted Transportation System Plan not Requiring Future Land Use Review and Approval -Landscaping as Part of a Transportation Facility -Emergency Measures -Street or Road Construction as Part of an Approved Subdivision or Partition				
Transportation Projects that are Not Designated Improvements in the Transportation System Plan	L	L	Yes	III
Transportation Projects that are Not Designed and Constructed as Part of an Approved Subdivision or Partition	C	C	Yes	III

Key:

- X Prohibited
- C Conditional Use
- L Limited
- P Permitted

2.4.40 USES ALLOWED IN COMMERCIAL ZONING DISTRICTS.

Table 2.4.1 identifies permitted and conditional (discretionary) uses that may be allowed within Commercial zoning districts.

Table 2.4.1: Commercial Districts – Permitted, Limited and Conditional Uses

Use Categories	CN	CG	MU	CBD	Development Review	Review Type
Retail Sales and Service Uses						
Primarily Indoor	L	P	L	P	Y	I
Primarily Outdoor	X	L	X	X	Y	I,II
Offices	L	P	L	P	Y	I,II
Overnight Accommodations	L	P	L	P	Y	I,II
Amusement Enterprises						
Indoor	L	L	L	L	Y	I,II
Outdoor	X	C	X	X	Y	III
Community Service Uses	L	P	L	P	Y	I,II
Motor Vehicle Oriented Uses						
Quick Service	L	P	L	L	Y	I, II
Repair Services	L	P	L	L	Y	I,II
Outdoor Sales and Storage	X	P	L	C	Y	I,III
Industrial Service	X	C	X	X	Y	III
Wholesale / Large-Scale Outdoor Retail I	X	P	X	X	Y	I
Residential						
Single Family	L	X	L	C	Y	II,III
Assisted Living Facility	C	C	C	C	Y	III
Group Care	C	C	L	C	Y	II, III
Multiple Family	C	C	L	C	Y	II, III
Rowhouses	C	C	L	C	Y	II, III
Animal Care Facilities	L	L	X	L	Y	II,III
Planned Development	C	C	C	X	Y	III
Accessory Structures	C	C	C	C	Y	III
Wireless Communication Facilities	X	C	X	X	Y	III

(WCF)						
Transportation Facilities and Improvements: -Normal Operation and Maintenance -Installation of Improvements Within the Existing Right-Of-Way -Projects Identified in the Adopted Transportation System Plan not Requiring Future Land Use Review and Approval -Landscaping as Part of a Transportation Facility -Emergency Measures -Street or Road Construction as Part of an Approved Subdivision or Partition	P	P	P	P	No	I
Transportation Projects that are Not Designated Improvements in the Transportation System Plan	L	L	L	L	Yes	III
Transportation Projects that are Not Designed and Constructed as Part of an Approved Subdivision or Partition	C	C	C	C	Yes	III

Key: X - Prohibited C - Conditional Use L - Limited P - Permitted

2.5.40 USES ALLOWED IN INDUSTRIAL ZONING DISTRICTS.

Table 2.5.1 identifies permitted and conditional uses that may be allowed within Industrial zoning districts.

Table 2.5.1: Industrial Districts – Permitted, Limited and Conditional Uses

Use Category * / Zoning District	IL	IH	Development Review	Review Type
Manufacturing and Processing				
➢ Primary	L	P/L	Yes	II,III
➢ Secondary	L	P/L	Yes	I
➢ Hazardous Materials	C	C	Yes	III
Offices *	P/L	L	Yes	I
Retail & Service Uses	C	C	Yes	III
Community Service Uses *	C	C	Yes	III
Motor Vehicle Oriented Uses *	C	C	Yes	III
➢ Repair Services *	P	P	Yes	I
Industrial Service *	P	P	Yes	I
Wholesale & Warehouse Uses *	P	P	Yes	I
Large-Scale Outdoor Retail II*	C	C	Yes	III
Major Public Facilities	C	C	Yes	III
Animal Care Facilities	C	C	Yes	III
Residential	X	X	NA	NA
One single-family dwelling for caretaker/watchman	L	L	Yes	II
Master-Planned Industrial Park Dev.*	P/L	L	Yes	II
Agricultural Uses	P	P	No	NA
Wireless Communication Facilities (WCF)	C	C	Yes	III
Transportation Facilities and Improvements: -Normal Operation and Maintenance -Installation of Improvements Within the Existing Right-Of-Way -Projects Identified in the Adopted Transportation	P	P	No	I

System Plan not Requiring Future Land Use Review and Approval -Landscaping as Part of a Transportation Facility -Emergency Measures -Street or Road Construction as Part of an Approved Subdivision or Partition				
Transportation Projects that are Not Designated Improvements in the Transportation System Plan	L	L	Yes	III
Transportation Projects that are Not Designed and Constructed as Part of an Approved Subdivision or Partition	C	C	Yes	III

Key:

- X Prohibited
- C Conditional Use
- L Limited
- P Permitted

2.6.40 USES ALLOWED IN THE PARK & OPEN SPACE ZONING DISTRICT.

Table 2.6.1 identifies permitted and conditional uses that may be allowed within the POS district.

Table 2.6.1: Park & Open Space District Land Uses

Use/Zoning District	POS	Development Review	Review Type
Park and Open Space, Fields, Courts, Centers, Playgrounds and Golf Courses	P	Yes	I
Accessory Uses	P	Yes	I
Major Public Facilities	C	Yes	III
One single-family dwelling for caretaker/watchman	L	Yes	II
Transportation Facilities and Improvements: -Normal Operation and Maintenance -Installation of Improvements Within the Existing Right-Of-Way -Projects Identified in the Adopted Transportation System Plan not Requiring Future Land Use Review and Approval -Landscaping as Part of a Transportation Facility -Emergency Measures -Street or Road Construction as Part of an Approved Subdivision or Partition	P	No	I
Transportation Projects that are Not Designated Improvements in the Transportation System Plan	L	Yes	III
Transportation Projects that are Not Designed and Constructed as Part of an Approved Subdivision or Partition	C	Yes	III

Key:

- X Prohibited
- C Conditional Use
- L Limited
- P Permitted

3.4.40 APPLICABILITY.

(4) Conditional Use Permit for Transportation System Facilities Expiration. A Conditional Use Permit for Transportation System Facilities shall be void after three (3) years.

3.4.40 REVIEW CRITERIA.

In determining whether a Conditional Use proposal shall be approved with conditions, the Commission shall find that the following criteria are met or can be met by observance of conditions.

(1) The proposed use meets the dimensional standards of the underlying zoning district and conforms with Development Review standards of this Code.

(2) The location, size, design, and operating characteristics of the proposed use will have minimal adverse impact on the livability, value, and appropriate use – including the appropriate future development – of neighboring properties and the community as a whole.

(3) Adverse impacts identified through the application and public hearing process can be mitigated.

(4) For transportation system facilities and improvements requiring a Conditional Use permit:

(i) The project and its design are consistent with the City's adopted Transportation System Plan.

(ii) The project design is compatible with abutting land uses in regard to noise generation and public safety and is consistent with the applicable zoning and development standards and criteria for the abutting properties.

(iii) The project design minimizes environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities, and a site with fewer environmental impacts is not reasonably available. The applicant shall document all efforts to obtain a site with fewer environmental impacts, and the reasons alternative sites were not chosen.

(iv) The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design feature.

(v) The project includes provisions for bicycle and pedestrian access and circulation consistent with the Dallas Comprehensive Plan, the Dallas Transportation System Plan and the requirements of this code.

(vi) For State transportation facility projects, the Oregon Department of Transportation (ODOT) shall provide a narrative statement with the application demonstrating compliance with all of the criteria and standards in subsections (i)-(v) above.

(vii) Where applicable and EIS or EA may be used to address one or more of these criteria.

II. OAR 660-12-0045(1)(c)

Each local government shall amend its land use regulations to implement the TSP.

In the event that a transportation facility, service or improvement is determined to have a significant impact on land use or to concern the application of a comprehensive plan or land use regulation and to be subject to standards that require interpretation or the exercise of factual, policy or legal judgment, the local government shall provide a review and approval process that is consistent with 660-012-0050. To facilitate implementation of the TSP, each local government shall amend its land use regulations to provide for consolidated review of land use decisions required to permit a transportation project.

Dallas Development Code Changes

The proposed changes to DDC Sections 1.3.10 and 1.3.60 as recommended for compliance with OAR 660-12-0045(2)(f) also address compliance with TPR requirement 660-12-0045(1)(c).

This change ensures multijurisdictional notice with regard to significant land use or transportation facility applications for development. This ensures findings of compliance with applicable acknowledged comprehensive plan policies and land use regulations through the land development application process.

III. OAR 660-12-0045(2)(a)

Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:

Access control measures, for example, driveway and public road spacing, median control and signal spacing standards, which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities.

Dallas Development Code Changes

Per OAR 660-12-0045(2)(a), the City of Dallas DDC shall include access control standards. The following proposed changes to the DDC fulfill compliance with the TPR. According to Chapter 7 of the Dallas TSP, the DDC should be amended to include access standards for city public streets and private accesses which should be implemented as development and redevelopment occurs. Chapter 6 of the Dallas TSP outlines access strategies for Dallas. These proposed changes codify the principle of access management, which is intended to manage vehicle access to development through a connected street system, while preserving the flow of traffic in terms of safety, roadway capacity and efficiency.

Chapter 1.2. DEFINITIONS.

- Access. A way or means of approach to provide pedestrian, bicycle or motor vehicular entrance or exit to a property.
- Access Point. Any driveway, street, turnout or other means of providing for the movement of vehicles to or from the public roadway system.
- Corner Clearance. The distance from an intersection of a public or private street to the nearest driveway or other access connection, measured from the closest edge of the pavement of the intersecting street to the closest edge of pavement of the connection along the traveled way.
- Cross Access. A service drive providing vehicular access between two or more contiguous sites so the driver need not enter the public street system.
- Driveway. Area that provides vehicular access to a site, except for public and private streets. A driveway begins at the property line and extends into the site. Driveways do not include parking, maneuvering, or circulation areas in parking lots and parking spaces.
- Lot, corner. Any lot having at least two (2) contiguous sides abutting upon one or more streets, provided that the interior angle at the intersection of the two sides is less than 135 degrees.

4.2.30 STREETS.

(16) Access Spacing. Driveway accesses shall be separated from other driveways and street intersections in accordance with the following standards:

(a) State Highways. The following access spacing standards apply with regard to redevelopment or change in land use, roadway improvements, or new access points along Kings Valley Highway and Dallas Rickreall Highway within Dallas. Access to Kings Valley Highway and Dallas Rickreall Highway shall be subject to the applicable standards and policies contained in the Oregon Highway Plan and OAR 734-051 (Division 51).

Table 4.2.2 Access Spacing Standards for State Highways within Dallas

Speed	Urban Non-Expressway (feet)	Urban Business Area (UBA), Urban (feet)	Special Transportation Area (STA), Urban (feet)
55+ MPH	700		
40 & 45 MPH	500		
35 MPH or less	400	350	175*

* Urban STA Spacing is 175 feet or mid-block if the current block spacing is less than 350 feet.

Note: From OAR 734-051, Table 4, Access Management Spacing Standards for Private and Public Approaches on District Highways.

(b) Arterial, Collector and Local Streets. The following access spacing standards apply with regard to redevelopment or change in land use, roadway improvements, or new access points along arterial, collector and local streets within Dallas. Access spacing on collector and arterial streets (other than state highways) and at controlled intersections (four-way stop sign or traffic signal) shall be determined based on the policies and standards contained in the Dallas Transportation System Plan. A minimum of 50 feet separation (as measured from the sides of the driveway/street) shall be required on local streets (i.e. streets not designated as collectors or arterials), except as provided in subsection (c) below.

Table 4.2.3 Access Spacing Standards for City Roadways within Dallas

Functional Classification	Minimum Posted Speed (MPH)	Minimum Access Spacing (feet)
Arterial	35	200
Collector	25	50
Local	25	50

(c) Special Provisions for All Streets. Direct street access may be restricted for some land uses, in conformance with the provisions of Article II. Zoning Districts and Use Categories. For example, access consolidation, shared access, and/or access separation greater than that specified by subsections a-c may be required by the City, Polk County, or ODOT for the purposed of protecting the function, safety and operation of the street for all users (see section 18 below). Where no other alternatives exist, the permitting agency may allow construction of an access connection along the property line farthest from an intersection. In such cases, directional connections (i.e., right in/out, right in only, or right out only) may be required.

(d) Corner Clearance. The distance from a street intersection to a driveway or other street access shall meet or exceed the minimum spacing requirements for the street classification in the Dallas Transportation System Plan.

(17) Number of Access Points. For single-family (detached and attached), two-family, and three-family housing types, one street access point is permitted per lot, when alley access cannot otherwise be provided; except that two access points may be permitted for two-family and three-family housing on corner lots subject to the access spacing standards in section (16) above. The number of street access points for multiple family, commercial, industrial, and park & open space developments shall be minimized to protect the function, safety and operation of the street(s) and sidewalk(s) for all users. Shared access may be required in order to maintain the required access spacing and minimize the number of access points.

(18) Shared Driveways. The number of driveway and private street intersections with public streets shall be minimized by the use of shared driveways with adjoining lots where feasible. As applicable, the City shall require shared driveways as a condition of land divisions or site design review for traffic safety and access management purposes in accordance with the following standards:

(a) Shared Driveways and Frontage Streets. These treatments may be required to consolidate access onto a collector or arterial street. When shared driveways or frontage streets are required, they shall be stubbed to adjacent developable parcels to indicate future extension. “Stub” means that a driveway or street temporarily ends at the property line, but may be extended in the future as the adjacent parcel develops. “Developable” means that a parcel is either vacant or it is likely to receive additional development (due to infill or redevelopment potential).

(b) Access Easements. Access easements for the benefit of affected properties shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.

(c) Exception. Shared driveways are not required when existing development patterns or physical constraints (e.g. topography, parcel configuration, and similar conditions) prevent extending the street/driveway in the future.

IV. OAR 660-12-0045(2)(b)

Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:

Standards to protect future operation of roads, transitways and major transit corridors.

Dallas Development Code Changes

In addition to the DDC changes recommended above to address OAR 660-12-0045(2)(a) – access control standards – the following changes related to traffic operations performance standards are proposed to the DDC for compliance with OAR 660-12-0045(2)(b).

3.2.30 APPLICABILITY.

(5) Adequate Public Facilities. No development shall be approved unless adequate public facilities are available or improvements will be constructed and operational, as required by this Code, the Dallas Transportation System Plan and the Dallas Comprehensive Plan.

(a) If existing improvements leading to or serving the site are inadequate to handle anticipated loads, improvements are to be constructed and operational prior to the issuance of building permits or in conjunction with construction of the approved lots or parcels pursuant to financial assurance for the improvements or a written agreement with the City prior to final plat approval.

(b) If over-sizing of public facilities is required, the developer may be eligible for cost reimbursement for the over-sizing according to city policy.

(c) All street links or intersections serving the proposed development shall meet the traffic operations standards as outlined in the Dallas Transportation System Plan and as follows:

Table 3.2.1 Traffic Operations Performance Standards within Dallas

Facility Type	Speed Limit	Maximum Volume/Capacity Ratio	Level of Service Standard
OR 223; within STA		0.95*	
OR 223; outside STA	Less than 45 MPH	0.85*	
OR 223; outside STA	45 MPH or greater	0.80*	
City Streets	Less than 45 MPH	0.85	D (arterials and collectors)
City Streets	45 MPH or greater	0.80	D (arterials and collectors)

* Note: Maximum Volume/Capacity Ratios for OR 223 are per the 1999 Oregon Highway Plan, Table 6.

3.3.50 DEVELOPMENT CRITERIA.

(5) Streets and intersections serving the proposed land division are adequate to accommodate increased vehicular, bicycle and pedestrian traffic safely and efficiently.

(a) To make this determination, the Development Official may require that the applicant prepare a transportation impact study which demonstrates that all street links or intersections serving the proposed land division will meet the traffic operations standards as outlined in the Dallas Transportation System Plan and as follows:

Table 3.3.1 Traffic Operations Performance Standards within Dallas

Facility Type	Speed Limit	Maximum Volume/Capacity Ratio	Level of Service Standard
OR 223; within STA		0.95*	
OR 223; outside STA	Less than 45 MPH	0.85*	
OR 223; outside STA	45 MPH or greater	0.80*	
City Streets	Less than 45 MPH	0.85	D (arterials and collectors)
City Streets	45 MPH or greater	0.80	D (arterials and collectors)

* Note: Maximum Volume/Capacity Ratios for OR 223 are per the 1999 Oregon Highway Plan, Table 6.

~~at a minimum, that no street link or intersection serving the proposed land division will exceed LOS (level-of-service) D during peak morning or evening demand periods or LOS C during non-peak demand periods.~~ This traffic impact study must consider the proposed development and probable development within the area served by each street link or intersection for at least a 10-year period.

3.4.50 CONDITIONS OF APPROVAL.

In addition to the general requirements of this Code, the Commission may recommend conditions to be attached which it finds necessary to satisfy conditional use review criteria or to mitigate identified impacts. These conditions may include but are not limited to the following:

(12) Requiring that transportation level-of-service or traffic operations standards are met at intersections and street links serving the conditional use.

~~(12)~~ (13) Making any other condition to permit the development of the City in conformity with the intent and purpose of the Comprehensive Plan.

3.7.40 REVIEW CRITERIA.

(1)(b) Adequate public facilities are available to meet increased demand for services that may result from potential development allowed on the rezoned site. The applicant shall demonstrate that:

iii) Streets serving the proposed site are adequate to accommodate increased vehicular, bicycle and pedestrian traffic safely and efficiently. To make this determination, the City may require that the applicant prepare a transportation impact study which demonstrates that all street links or intersections serving the proposed land division will meet the traffic operations standards as outlined in the Dallas Transportation System Plan and as follows:

Table 3.7.1 Traffic Operations Performance Standards within Dallas

Facility Type	Speed Limit	Maximum Volume/Capacity Ratio	Level of Service Standard
OR 223; within STA		0.95*	
OR 223; outside STA	Less than 45 MPH	0.85*	
OR 223; outside STA	45 MPH or greater	0.80*	
City Streets	Less than 45 MPH	0.85	D (arterials and collectors)
City Streets	45 MPH or greater	0.80	D (arterials and collectors)

* Note: Maximum Volume/Capacity Ratios for OR 223 are per the 1999 Oregon Highway Plan, Table 6.

~~at a minimum, that no street link or intersection serving the proposed land subdivision will exceed LOS (level-of-service) D during peak morning or evening demand periods or LOS C during non-peak demand periods.~~ This traffic impact study must consider the proposed development and probable development within the area served by each street link or intersection for at least a 10-year period.

(2) COMPREHENSIVE PLAN MAP AND STREET DESIGNATION AMENDMENTS. Where a Comprehensive Plan Map is proposed (including an urban growth boundary amendment), the applicant shall demonstrate conformance with the following criteria:

(a) Applicable Statewide Planning Goals.
(b) Applicable Goals and Policies of the Dallas Comprehensive Plan (Volume II).
(c) Amendments to collector and arterial street designations shall explicitly address the Transportation Planning Rule (OAR Chapter 660, Division 12) and the Transportation Policies of the Dallas Comprehensive Plan and the Dallas Transportation System Plan.

3.8.70 DESIGN STANDARDS AND REQUIREMENTS

(15) Traffic Impacts. The developer shall be responsible for determining traffic impacts and construct improvements necessary to mitigate identified impacts, consistent with service levels established in the Comprehensive Plan.

(a) Private access to collector and arterial streets shall be minimized.
(b) Parallel through streets and contoured "grid" patterns shall be encouraged.
(c) ~~Until Level of Service (LOS) levels have been adopted, no development shall exceed LOS D (as defined by the Director of Public Works) during peak use periods.~~ Streets serving the proposed site shall be adequate to accommodate increased vehicular, bicycle and pedestrian traffic safely and

efficiently. To make this determination, the City may require that the applicant prepare a transportation impact study which demonstrates that all street links or intersections serving the proposed land division will meet the traffic operations standards as outlined in the Dallas Transportation System Plan and as follows:

Table 3.8.1 Traffic Operations Performance Standards within Dallas

Facility Type	Speed Limit	Maximum Volume/Capacity Ratio	Level of Service Standard
OR 223; within STA		0.95*	
OR 223; outside STA	Less than 45 MPH	0.85*	
OR 223; outside STA	45 MPH or greater	0.80*	
City Streets	Less than 45 MPH	0.85	D (arterials and collectors)
City Streets	45 MPH or greater	0.80	D (arterials and collectors)

* Note: Maximum Volume/Capacity Ratios for OR 223 are per the 1999 Oregon Highway Plan, Table 6.

This traffic impact study must consider the proposed development and probable development within the area served by each street link or intersection for at least a 10-year period.

3.9.90 ADEQUATE PUBLIC FACILITIES REQUIREMENTS.

(2) Transportation Plans. All development shall be consistent with adopted transportation plans for the area, including the following:

(a) The Dallas Transportation System Plan.

~~(a)~~ (b) The collector and arterial street system ~~as shown on the Dallas Comprehensive Plan Map~~ as shown in the Dallas Transportation System Plan, Figure 7-1.

~~(b)~~ (c) Chapter 5, Multi-Modal Transportation, Volume I, Goals and Policies, of the Dallas Comprehensive Plan (see also Chapter 5, Transportation Element, Volume II, Background, of the Dallas Comprehensive Plan, for useful information).

~~(c)~~ (d) The 1999 Transportation Impact Study adopted in conjunction with adoption of the Barberry and LaCreole Master Plans; and

~~(d)~~ (e) required transportation impact studies for specific development proposals.

(3) ADEQUATE PUBLIC FACILITIES & LEVEL-OF-SERVICE STANDARDS. Before land is annexed and rezoned to enable implementation of adopted Master Plans for Mixed Use Nodes.

(a) Adequate public facilities standards of Chapter 3.7, Comprehensive Plan and Zoning Map and Text Amendments, shall be met.

(b) Public facility improvement standards of Chapter 4.2, Street & Accessway Design Standards, shall be met.

(c) Public facilities deficiencies for specific areas, as described in the Dallas Comprehensive Plan, shall be to the satisfaction of the Director of Public Works. See especially:

i) Chapter VII, Public Facilities Plan, Volume II, Background, of the Dallas Comprehensive Plan.

ii) Map 9, Public Facilities Deficient Areas, of the Dallas Comprehensive Plan.

iii) The Dallas Transportation System Plan, Chapter 7.

V. OAR 660-12-0045(2)(f)

Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:

Regulations to provide notice to public agencies providing transportation facilities and services, MPOs, and ODOT of:

(A) Land use applications that require public hearings;

(B) Subdivision and partition applications;

(C) Other applications which affect private access to roads; and

(D) Other applications within airport noise corridors and imaginary surfaces which affect airport operations.

Dallas Development Code Changes

To comply with TPR requirement OAR 660-12-0045(2)(f), the following changes are proposed to the DDC to ensure noticing of ODOT and other public agencies providing transportation facilities and services:

1.3.10 SUMMARY OF PROCEDURE TYPES.

(3) Type III Procedure. Type III quasi-judicial decisions require application of general criteria on a case-by-case basis to development proposals, and therefore require public notice and a public hearing before the Planning Commission. Type III decisions include, but are not limited to, land divisions, <u>other applications which require access to public roads, applications which require preparation of a Transportation Impact Analysis,</u> discretionary use permits, conditional uses, variances, zone change, non-conforming use expansions, and similar decisions.

1.3.60 QUASI-JUDICIAL PUBLIC HEARINGS.

(2) For Type III and IV applications, notice shall be mailed to owners of record, as listed on the most recent property tax assessment roll and as provided by the applicant, of all properties within 100 feet of the exterior boundaries of property which is the subject of the notice, at least 20 days before the evidentiary hearing. Comprehensive Plan, Development Code and Zoning Map amendments notification shall be mailed to owners of record, as listed on the most recent property tax assessment roll and as provided by the applicant, of all properties within 100 feet of the exterior boundaries of property which is the subject of the notice. Notice shall be sent least 20 days before the evidentiary hearing. Application must be submitted to the Community Development Department at least 50 days prior to the Planning Commission meeting.

(3) Notice shall also be provided to any neighborhood or community organization recognized by the City and whose boundaries include the property which is the subject of the notice.

<u>(4) For Type III and IV applications, notice shall also be provided to the Oregon Department of Transportation (ODOT), Polk County, and any other public agencies providing transportation facilities and services. These agencies shall be given 30 calendar days to review the application and to suggest any revisions in the public's interest to protect the operation of transportation facilities and services.</u>

~~(4)~~ <u>(5)</u> The failure of an affected property owner to receive notice as provided in this section shall not invalidate such proceedings if the local government can demonstrate that actual notice was given or received.

~~(5)~~ (6) The notice provisions of this section shall not restrict the giving of notice by other means, including posting, newspaper publication, radio and television.

VI. OAR 660-12-0045(2)(g)

Local governments shall adopt land use or subdivision ordinance regulations, consistent with applicable federal and state requirements, to protect transportation facilities, corridors and sites for their identified functions. Such regulations shall include:

Regulations assuring that amendments to land use designations, densities, and design standards are consistent with the functions, capacities and levels of service of facilities identified in the TSP.

Dallas Development Code Changes

DDC Sections 3.7.40(1)(b)(iii) allow the City of Dallas to require the preparation of a traffic impact study, which at a minimum needs to demonstrate that a proposed Comprehensive Plan amendment does not degrade traffic operations below a specific traffic operations standard. DDC Section 3.7.40(2) requires that Comprehensive Plan map and street designation amendments address the TPR and transportation policies in the Dallas Comprehensive Plan. The recommended code changes to address OAR 66-12-0045(2)(b) address the requirements of OAR 660-23-0045(2)(g), in that the changes define specific traffic operations performance standards and reference the functional classification system in the TSP. The following changes are also proposed.

3.7.30 APPLICATION REQUIREMENTS.

(7) Transportation Impact Study or Analysis (TIA) as applicable. The application shall be reviewed to determine whether it significantly affects a transportation facility, in accordance with Oregon Administrative Rule (OAR) 660-12-0060. If the review indicates that a transportation facility could be significantly affected, a TIA may be required. Significant means the proposal would:

(a) Change the functional classification of an existing or planned transportation facility. This would occur, for example, when a proposal causes future traffic to exceed the capacity of "collector" street classification, requiring a change in the classification to an "arterial" street, as identified in the Dallas Transportation System Plan; or

(b) Change the standards implementing a functional classification system; or

(c) As measured at the end of the planning period identified in the adopted Dallas Transportation System Plan:

- (i) Allow types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or
- (ii) Reduce the level of service/transportation operations performance standard below the minimum acceptable level as identified in the Dallas Transportation System Plan.
- (iii) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable traffic operations performance standard identified in the Dallas Transportation System Plan.

3.7.40 REVIEW CRITERIA.

(3) Amendments Significantly Affecting Transportation Facilities. Amendments to the Comprehensive Plan and land use standards which significantly affect a transportation facility shall assure that allowed land uses are consistent with the function, capacity and performance standards of the facility identified in the Transportation System Plan. This shall be accomplished by one of the following:

(a) Adopting measures demonstrating allowed land uses are consistent with the planned function, capacity and performance standards of the transportation facility; or
(b) Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land use uses consistent with the requirements of the Transportation Planning Rule. Such amendments shall include a funding plan or mechanism consistent with the Transportation Planning Rule or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period; or
(c) Altering land use designations, densities or design requirements to reduce demand of automobile travel and meet travel needs through other modes of transportation; or
(d) Amending the Transportation System Plan to modify the planned function, capacity or performance standards of the transportation facility; or
(e) Providing other measures as a condition of development or through a development agreement or similar funding method, including transportation system management measures, demand management or minor transportation improvements. Timing of such measures shall be provided.
(f) Exceptions. An amendment that would significantly affect an existing transportation facility may be approved without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility where:
    (i) The facility is already performing below the minimum acceptable performance standard identified in the Transportation System Plan on the date the amendment application is submitted.
    (ii) In the absence of the amendment, planned transportation facilities, improvements and services would not be adequate to achieve consistency with the identified function, capacity or performance standard for that facility by the end of the planning period identified in the adopted Dallas Transportation System Plan.
    (iii) Development resulting from the amendment will, at a minimum, mitigate the impacts of the amendment in a manner that avoids further degradation to the performance of the facility by the time of the development through one or a combination of transportation improvements or measures.
    (iv) The amendment does not involve property located in an interchange area as defined by the Transportation Planning Rule
    (v) For affected state highways, ODOT provides a written statement that the proposed funding and timing for the identified mitigation improvements or measures are, at a minimum, sufficient to avoid further degradation to the performance of the affected state highway. If ODOT is given written notice and reasonable opportunity to submit a written statement but does not, the City may proceed with subsections (i) through (iv).

(4) AMENDMENTS SIGNIFICANTLY AFFECTING TRANSPORTATION FACILITIES – TPR COMPLIANCE. All amendments significantly affecting transportation facilities shall be consistent with the provisions set forth in Oregon Administrative Rule (OAR) 660-12-0060.

VII. OAR 660-12-0045(3)(b)

Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.

On-site facilities shall be provided which accommodate safe and convenient pedestrian and bicycle access from within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development. Single-family residential developments shall generally include streets and accessways. Pedestrian circulation through parking lots should generally be provided in the form of accessways.

(A) "Neighborhood activity centers" includes, but is not limited to, existing or planned schools, parks, shopping areas, transit stops or employment centers;

(B) Bikeways shall be required along arterials and major collectors. Sidewalks shall be required along arterials, collectors and most local streets in urban areas, except that sidewalks are not required along controlled access roadways, such as freeways;

(C) Cul-de-sacs and other dead-end streets may be used as part of a development plan, consistent with the purposes set forth in this section;

(D) Local governments shall establish their own standards or criteria for providing streets and accessways consistent with the purposes of this section. Such measures may include but are not limited to: standards for spacing of streets or accessways; and standards for excessive out-of-direction travel;

(E) Streets and accessways need not be required where one or more of the following conditions exist:

(i) Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided;

(ii) Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or

(iii) Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.

Dallas Development Code Changes

The following DDC changes address the provision of bikeways along arterials and major collectors for bikeways, per OAR 660-12-0045(3)(b).

4.2.40 STREETS.

(7) **Minimum Street, Sidewalk and Bikeway Standards.** Table 4.2.1 specifies typical street, sidewalk and bikeway right-of-way, paving and design standards as identified in Table 7-1 of the Dallas Transportation System Plan. These standards are based on the functional classification of each street as shown on Figure 7-1 of the Dallas Transportation System Plan. The street right-of-way and improvement standards minimize the amount of pavement and ROW required for each street classification consistent with the operational needs for each facility, including requirements for pedestrians, bicyclists and public utilities.

Table 4.2.1: Minimum Typical Street, Sidewalk and Bikeway Standards

Facility	ROW	Travel Lanes	Median Types	Bike Lanes	Sidewalks	On-Street Parking	Planting Strip	Speed	Utility Area
Major Arterial									
Criteria	90'-100'	Min. of 2 @ 12'	14' TWLTL	6' both sides	6' both sides	None	Min. of 4' both sides	30-45 MPH	0'-15' both sides
Preferred	100'	4 @ 12'	14' TWLTL	6' both sides	6' both sides	None	6' both sides	30-45 MPH	1' both sides
Minor Arterial									
Criteria	80'-90'	2 @ 12'	14 ' TWLTL (optional)	6' both sides	6' both sides	None	Min. of 4' both sides	25-45 MPH	3' to 17' both sides
Preferred	80'	2 @ 12'	14' TWLTL	6' both sides	6' both sides	None	6' both sides	25-45 MPH	3' both sides
Major Collector									
Criteria	70'-80'	2 @ 12'	12' to 14' TWLTL (optional but not with parking)	6' both sides(1)	6' both sides	8' both sides (optional but not with TWLTL)	5' both sides	25-40 MPH	0'-5'
Preferred	74'	2 @ 12'	14' TWLTL	6' both sides	6' both sides	None	5' both sides	25-40 MPH	1' both sides
Minor Collector									
Criteria	60'-70'	2 @ 12'	None	5' both sides(1)	5' both sides	8' both sides	Min. of 4' both sides	20-35 MPH	0'-6' both sides
Preferred	70'	2 @ 12'	None	5' both sides	5' both sides	8' both sides	4' both sides	20-35 MPH	1' both sides

Local									
Criteria	50'-60'	2 @ 10'	None	None	5' both sides	8' one side	4' both sides in Mixed Use Nodes	20-35 MPH	2'-11' both sides
Preferred	60'	36' travel way	None	None	5' both sides	Allowed	None	20-35 MPH	7' both sides
Cul-de-Sac									
Street	50'	2 @ 16'	None	None	5' both sides	Allowed	None	20 MPH	5' both sides
Bulb	50' radius	40' radius paved	None	None	5' around	Allowed	None	20 MPH	10' around
Alley									
Residential	16'	1 @ 16'	None	None	None except in Mixed Use Nodes	None	None	20 MPH	None
Commercial	20'	1 @ 20'	None	None	None except in Mixed Use Nodes	None	None	20 MPH	None
Ped/Bike Connection	6' to 12' paved multi-use path with landscaping. Includes 20' of ROW.								

(1) Include bike lanes if adopted in Dallas Transportation System Plan.

~~Type of Street~~	~~Right-of-Way~~	~~Sidewalks/ Parkrows~~	~~Paved Roadway~~	~~Bicycle Lane~~
~~Arterial Street~~	~~80-100' unless more is required by City Engineer~~	~~5' sidewalks on both sides; 4' parkrows~~	~~52' or more per City Engineer~~	~~6' both sides if on adopted plan~~
~~Collector Street~~	~~70'~~	~~5' sidewalks on both sides; 4' parkrows~~	~~36-40'~~	~~6' both sides if on adopted plan~~
~~Local Street~~	~~60' if no alley; 50' if alley~~	~~5' sidewalks on both sides; 4' parkrows in Mixed Use Nodes~~	~~36' if no alley; 32' if alley~~	~~6' both sides if on adopted plan~~
~~Cul-de-Sacs~~	~~50' street + 5' utility easements on both sides; 50' bulb radius + 10' utility easements~~	~~5' sidewalks on both sides~~	~~32' street + 40' bulb radius~~	~~None Required~~
~~Ped/Bike~~	~~20' pedestrian connection~~	~~6' paved walkway with~~	~~Not Applicable~~	~~6' both sides if on~~

~~Connections~~		~~landscaping~~		~~adopted plan~~
~~Alleys~~	~~16' residential; 20' commercial~~	~~Not required except in Mixed Use Nodes~~	~~16' residential; 20' commercial~~	~~Not Applicable~~

(a) Right-of-way and street width shall be determined by the Director of Public Works and recommended to the Commission. When an area within a land division or development review is set aside for commercial uses, or where probable future conditions warrant, the Commission may require dedication of streets to a different standard ~~greater width~~than indicated by Table 4.2.1.

(b) Wheelchair ramps and other facilities shall be provided as required by the Americans with Disabilities Act (ADA). The lower lip of the wheelchair ramp shall be flush with the roadway surface. Mailboxes and utility cabinets shall not infringe on public sidewalks or accessways.

(c) Bikeways shall be designed and constructed consistent with the design standards in the 1992 Oregon Bicycle Plan, and AASHTO's "Guide for the Development of Bicycle Facilities, 1991."

(d) Street trees of at least 10 feet in height and two inches in diameter shall be installed at not less than 30-foot intervals within all parkrows on arterial and collector streets. The Commission shall determine whether parkrows will be required for local streets. If parkrows are not present, the Commission may require street trees to be installed in the front yards of each lot.

(e) Temporary dead-end streets which may be extended in the future shall have a right-of-way and pavement width that will conform to the development pattern when extended.

(f) Where topographical requirements necessitate either cuts or fills for the proper grading of the streets, additional easements or rights of way shall be required to allow all cut and fill slopes to be within the easements or right-of-way. The Director of Public Works shall determine the required extra width.

VIII. OAR 660-12-0045(3)(c)

Local governments shall adopt land use or subdivision regulations for urban areas and rural communities as set forth below. The purposes of this section are to provide for safe and convenient pedestrian, bicycle and vehicular circulation consistent with access management standards and the function of affected streets, to ensure that new development provides on-site streets and accessways that provide reasonably direct routes for pedestrian and bicycle travel in areas where pedestrian and bicycle travel is likely if connections are provided, and which avoids wherever possible levels of automobile traffic which might interfere with or discourage pedestrian or bicycle travel.

Where off-site road improvements are otherwise required as a condition of development approval, they shall include facilities accommodating convenient pedestrian and bicycle travel, including bicycle ways along arterials and major collectors;

Dallas Development Code Changes

The DDC changes proposed to address OAR 660-12-0045(3)(b) also address bicycle ways along arterials and major collectors per OAR 660-12-0045(3)(c).

IX. OAR 660-12-0045(6)

In developing a bicycle and pedestrian circulation plan as required by 660-012-0020(2)(d), local governments shall identify improvements to facilitate bicycle and pedestrian trips to meet local travel needs in developed areas. Appropriate improvements should provide for more direct, convenient and safer bicycle or pedestrian travel within and between residential areas and neighborhood activity centers (i.e., schools, shopping, transit stops). Specific measures include, for example, constructing walkways between cul-de-sacs and adjacent roads, providing walkways between buildings, and providing direct access between adjacent uses.

Dallas Development Code Changes

Chapter 7 of the Dallas TSP identifies bicycle and pedestrian improvements. These improvements are intended to facilitate bicycle and pedestrian trips to meet local travel needs. Changes to the DDC to meet OAR 660-12-0045(6) include the following.

4.2.20 COMPLIANCE WITH ADOPTED PLANS.

Streets, sidewalks, accessways and bikeways shall be installed where required to comply with:

(1) The Dallas Comprehensive Plan, Volume II, Chapter VII;
(2) The Dallas Transportation System Plan, including pedestrian, bicycle and street improvements identified in Chapter 7;
(3) The Dallas Bicycle Plan; and
(4) The Transportation Impact Study and Congestion Management Plan recommendations that support Mixed Use Node Master Plans.

X. OAR 660-12-0045(7)

Local governments shall establish standards for local streets and accessways that minimize pavement width and total right-of-way consistent with the operational needs of the facility. The intent of this requirement is that local governments consider and reduce excessive standards for local streets and accessways in order to reduce the cost of construction, provide for more efficient use of urban land, provide for emergency vehicle access while discouraging inappropriate traffic volumes and speeds, and which accommodate convenient pedestrian and bicycle circulation. Not withstanding subsection (1) or (3) of this section, local street standards adopted to meet this requirement need not be adopted as land use regulations.

Dallas Development Code Changes

The DDC changes proposed to address OAR 660-12-0045(3)(b) also address OAR 660-12-0045(7). The proposed standards for local streets included in Table 7-1 of the Dallas TSP (proposed DDC Table 4.2.1) outline local street widths, which do not require bicycle lanes or excessive width.

Final Draft
Dallas Transportation System Plan

Volume II
Appendixes

Prepared for

City of Dallas
and the
Oregon Department of Transportation

June 2005

Prepared by

CH2MHILL

List of Appendixes

APPENDIX A

Operational Analysis Methodology

Appendix A
Operational Analysis Methodology

30th Highest Traffic Volume Methodology

There are five signalized intersections and twenty[1] unsignalized intersections that will be included in the study. These locations were agreed upon by the City of Dallas and ODOT are shown in Table 1 with the type of counts that will be collected for each intersection. All of these counts are either 3- or 16-hour and will be collected in August and September. The 3-hour counts will be conducted in the pm peak period from 3 to 6 pm. This was determined by examining the Top 200 hours from Oak Knoll ATR site (# 27-006), which showed the highest volumes occurring the late afternoon. If the 16-hour counts show that the peak hour within the 16-hours is outside the 3:00 to 6:00 p.m. period a factor will be applied to those 3-hour counts to include that adjustment to the actual peak hour conditions, before factoring the counts to the 30th highest hour.

TABLE 12

Intersections to be included in analysis

Signalized Intersections

Major Street	Minor Street	Count Type[2]
Washington Street	Levens Street	16 hr*
Dallas-Rickreall Highway	W Ellendale Avenue	16 hr
Dallas-Rickreall Highway	LaCreole Drive	16 hr
Washington Street	Main Street	16 hr
Miller Avenue	Uglow Street	16 hr*

Unsignalized Intersections

Major Street	Minor Street	Count Type
Kings Valley Highway	Bridlewood Drive	3 hr
Kings Valley Highway	Oakdale Avenue	3 hr
Kings Valley Highway	Walnut Avenue	3 hr
Kings Valley Highway	Orchard Drive	3 hr
Kings Valley Highway	Polk Station Road	3 hr

Unsignalized Intersections

Major Street	Minor Street	Count Type
Dallas-Rickreall Highway	Fir Villa Road	16 hr
Dallas-Rickreall Highway	Oak Villa Road	3 hr
Dallas-Rickreall Highway	Polk Station Road	3 hr
Monmouth Cutoff Road	Uglow Street	16 hr
Monmouth Cutoff Road	Godsey Road	3 hr
W Ellendale Avenue	James Howe Road	3 hr
W Ellendale Avenue	River Drive	3 hr

[1] The 3-hour traffic count at Dallas-Rickreall Highway and Polk Station Road was not included in the original Dallas TSP Scope of Work, but was added at the request of the City. This count may be included in addition to other intersection counts (totaling counts at 20 unsignalized intersections), or may replace the 3-hour count at Main Street and Maple Street (19 unsignalized intersections).

[2] * Indicates count will be taken in September when school resumes.

W Ellendale Avenue	Levens Street	16 hr
Washington Street	Jefferson Street	16 hr
Mill Street	Main Street	3 hr
Mill Street	Jefferson Street	3 hr
Main Street	Maple Street	3 hr*
Miler Avenue	LaCreole Drive	3 hr*
Miler Avenue	Godsey Road	3 hr
Miler Avenue	Fir Villa Road	3 hr

Unfortunately, an automated traffic recorder (ATR) site is not stationed within the City of Dallas limits. As ODOT's TPAU Unit has suggested, a combination of two nearby sites will be used. These sites are Oak Knoll (27-006) and Monmouth (27-005). These sites are chosen as the roadway characteristic, ADT and lane configurations are similar to the state highways in the City of Dallas.

The procedure used to create 30th highest hour volumes (30 HHV) will utilize the same steps outlined in the pdf file located on the weblink below; which is to divide the count period seasonal factor by the peak period seasonal factor to get the 30 HHV seasonal factor. Once the peak hour volumes from the 3- or 16-hour are determined, the 30 HHV seasonal factor will be applied to them to get 30th highest hour volumes.

(http://www.odot.state.or.us/tddtpau/SysAnalysis.html#DataRes)

Traffic Analysis Software and Input Assumptions

Synchro software will be used for the intersection analysis. The reported results will be the V/C ratios from the HCM report. A list of assumptions are listed in Table 2.

TABLE 13

Synchro Operations Parameters/Assumptions

	Condition	
Arterial Intersection Parameters	**Existing (2004)**	**Design Year (2025) No-Build and Build Alternatives**
Peak Hour Factor	From traffic count, if not provided 0.90 for all intersection mvmts.	0.95 for all intersection movements
Conflicting Bikes and Pedestrian per Hour	From traffic count, if not provided, assume 10 peds/bikes per approach	Ditto
Area Type	"Other" Area	Ditto
Ideal Saturation Flow Rate (for all movements)	1800	Ditto
Lane Width	From As-builts, field visit or ODOT website, otherwise 12 feet	Ditto
Percent Heavy Vehicles	From traffic count, otherwise 5%	Ditto
Percent Grade	From As-builts, otherwise 0%	Ditto
Parking Maneuvers per Hour	From field visit, otherwise assume 0	Ditto
Bus Blockages	From field visit, otherwise assume 0.	Ditto
Intersection signal phasing and coordination	Current timing plan	Optimize
Intersection signal timing optimization limits	Current timing plan	60 to 120 seconds

TABLE 13

Synchro Operations Parameters/Assumptions

	Condition	
Arterial Intersection Parameters	**Existing (2004)**	**Design Year (2025) No-Build and Build Alternatives**
Minimum Green time	Current timing plan, otherwise 10 sec. if no pedestrian time required.	Ditto
Yellow and all-red time	From timing plan, otherwise (Y) = 4 seconds and (R) = 1 second	Ditto
Right Turn on Red	Allow except were signed to not	Ditto
95 Percentile vehicle queues calculated based on an average of 25 feet per vehicle and: For V/C < 0.70, use Synchro reports For V/C > 0.70, use SimTraffic report (the average of at least 5 runs of 1 hour length with 15-min peak divided out)[3]	Yes	Ditto
Level of service goals	Highway V/C threshold from the Oregon Highway Plan (OHP). Non-Highway results combination of delay (LOS) and V/C ratio	Highway No-Build V/C threshold from the Oregon Highway Plan (OHP) and Build V/C thresholds from the Highway Design Manual. Non-Highway results combination of delay (LOS) and V/C ratio

Note: Ditto is used when the Design Year 2025 assumption is similar to the Existing assumption

[3] The simulation will be for one hour with the peak 15-minutes in the first 15 minutes. The results from this simulation will be applied to signalized and unsignalized intersections.

APPENDIX B

Traffic Count Data

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

DALLAS-RICKREALL HIGHWAY AT FIR VILLA ROAD

SOUTHBOUND

Total: 332
PHF:
% Truck: 2%

Right	Thru	Left
258	**6**	**68**

EASTBOUND

Total: 1648
PHF:
% Truck: 2%

Left	**322**
Thru	**1314**
Right	**12**

WESTBOUND

Total: 135
PHF:
% Truck: 4%

99	Right
13	Thru
23	Left

NORTHBOUND

Left	Thru	Right
7	**5**	**13**

Total: 25
PHF:
% Truck: 0%

Vehicular Turning Movement

Original 3-hr Count

August 17, 2004

DALLAS-RICKREALL HIGHWAY AT OAK VILLA ROAD

SOUTHBOUND

Total: 28
PHF:
% Truck: 0%

Right	Thru	Left
18	**0**	**10**

EASTBOUND

Total: 1253
PHF:
% Truck: 3%

Left	**24**
Thru	**1229**
Right	**0**

WESTBOUND

Total: 1672
PHF:
% Truck: 1%

13	Right
1659	Thru
0	Left

NORTHBOUND

Left	Thru	Right
0	**0**	**0**

Total: 0
PHF:
% Truck: 0%

Vehicular Turning Movement

Original 3-hr Count

August 17, 2004

DALLAS-RICKREALL HIGHWAY AT POLK STATION ROAD

SOUTHBOUND

Total: 280
PHF:
% Truck: 2%

Right	Thru	Left
109	**0**	**171**

EASTBOUND

Total: 1452
PHF:
% Truck: 2%

Left	**104**
Thru	**1347**
Right	**1**

WESTBOUND

Total: 1795
PHF:
% Truck: 1%

118	Right
1677	Thru
0	Left

NORTHBOUND

Left	Thru	Right
0	**0**	**0**

Total: 0
PHF:
% Truck: 0%

Vehicular Turning Movement

30th Highest Hour Count

August 4, 2004

KINGS VALLEY HIGHWAY AT WALNUT

SOUTHBOUND

Total: 696
PHF:
% Truck: 2%

Right	Thru	Left
16	**648**	**32**

EASTBOUND

Total: 36
PHF:
% Truck: 0%

Left	**8**
Thru	**2**
Right	**24**

WESTBOUND

Total: 35
PHF:
% Truck: 0%

20	Right
0	Thru
15	Left

NORTHBOUND

37	**632**	**31**
Left	Thru	Right

Total: 700
PHF:
% Truck: 2%

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

KINGS VALLEY HIGHWAY AT BRIDLEWOOD DRIVE

SOUTHBOUND

Total: 827
PHF:
% Truck: 2%

Right	Thru	Left
201	**623**	**3**

EASTBOUND

Total: 117
PHF:
% Truck: 2%

Left	**103**
Thru	**1**
Right	**13**

WESTBOUND

Total: 2
PHF:
% Truck: 0%

2	Right
0	Thru
0	Left

NORTHBOUND

Left	Thru	Right
7	**494**	**0**

Total: 501
PHF:
% Truck: 2%

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

KINGS VALLEY HIGHWAY AT POLK STATION ROAD

SOUTHBOUND

Total: 174
PHF:
% Truck: 3%

Right	Thru	Left
81	**28**	**65**

Total: 711
PHF:
% Truck: 4%

Left	**68**
Thru	**623**
Right	**20**

58	Right
346	Thru
26	Left

Total: 430
PHF:
% Truck: 5%

EASTBOUND

WESTBOUND

9	**10**	**19**
Left	Thru	Right

Total: 38
PHF:
% Truck: 0%

NORTHBOUND

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

KINGS VALLEY HIGHWAY AT ORCHARD DRIVE

SOUTHBOUND

Total: 723
PHF:
% Truck: 2%

Right	Thru	Left
550	**19**	**154**

Total: 834
PHF:
% Truck: 3%

Left **454**

Thru **349**

Right **31**

EASTBOUND

156 Right

728 Thru

16 Left

Total: 900
PHF:
% Truck: 4%

WESTBOUND

Left	Thru	Right
21	**11**	**14**

Total: 46
PHF:
% Truck: 0%

NORTHBOUND

Vehicular Turning Movement

Original 3-hr Count

September 14, 2004

MAIN STREET AT MAPLE STREET

SOUTHBOUND

Total: 252
PHF:
% Truck: 4%

Right	Thru	Left
17	**152**	**83**

EASTBOUND

Total: 28
PHF:
% Truck: 9%

Left	**18**
Thru	**7**
Right	**3**

WESTBOUND

Total: 219
PHF:
% Truck: 11%

86	Right
10	Thru
123	Left

NORTHBOUND

Left	Thru	Right
0	**136**	**85**

Total: 221
PHF:
% Truck: 13%

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

MILL STREET AT JEFFERSON STREET

SOUTHBOUND

Total: 0
PHF:
% Truck: 0%

Right	Thru	Left
0	**0**	**0**

EASTBOUND

Total: 315
PHF:
% Truck: 0%

Left	**185**
Thru	**130**
Right	**0**

WESTBOUND

Total: 500
PHF:
% Truck: 2%

418	Right
81	Thru
1	Left

NORTHBOUND

Left	Thru	Right
92	**1136**	**37**

Total: 1265
PHF:
% Truck: 3%

Vehicular Turning Movement

Original 3-hr Count

August 5, 2004

MILL STREET AT MAIN STREET

SOUTHBOUND

Total: 2171
PHF:
% Truck: 1%

Right	Thru	Left
322	**1712**	**137**

EASTBOUND

Total: 218
PHF:
% Truck: 0%

Left **0**
Thru **112**
Right **106**

WESTBOUND

Total: 186
PHF:
% Truck: 0%

0 Right
109 Thru
77 Left

NORTHBOUND

1	**0**	**0**
Left	Thru	Right

Total: 1
PHF:
% Truck: 0%

Vehicular Turning Movement

Original 3-hr Count

September 14, 2004

MILLER AVENUE AT LaCREOLE DRIVE

SOUTHBOUND

Total: 701
PHF:
% Truck: 5%

Right	Thru	Left
421	**42**	**238**

Total: 849
PHF:
% Truck: 4%

Left **478**
Thru **366**
Right **5**

EASTBOUND

322 Right
445 Thru
23 Left

Total: 790
PHF:
% Truck: 1%

WESTBOUND

5	**24**	**12**
Left	Thru	Right

Total: 41
PHF:
% Truck: 6%

NORTHBOUND

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

MILLER AVENUE AT FIR VILLA ROAD

SOUTHBOUND

Total: 441
PHF:
% Truck: 2%

Right	Thru	Left
363	**0**	**78**

EASTBOUND

Total: 451
PHF:
% Truck: 1%

Left	**287**
Thru	**164**
Right	**0**

WESTBOUND

Total: 332
PHF:
% Truck: 0%

70	Right
262	Thru
0	Left

NORTHBOUND

Left	Thru	Right
0	**0**	**0**

Total: 0
PHF:
% Truck: 0%

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

MILLER AVENUE AT GODSEY ROAD

SOUTHBOUND

Total: 0
PHF:
% Truck: 0%

Right	Thru	Left
0	**0**	**0**

EASTBOUND

Total: 621
PHF:
% Truck: 2%

Left	**0**
Thru	**471**
Right	**150**

WESTBOUND

Total: 655
PHF:
% Truck: 2%

0	Right
587	Thru
68	Left

NORTHBOUND

197	**0**	**62**
Left	Thru	Right

Total: 259
PHF:
% Truck: 4%

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

MONMOUTH CUTOFF AT GODSEY ROAD

SOUTHBOUND

Total: 97
PHF:
% Truck: 11%

Right	Thru	Left
46	**5**	**46**

Total: 722
PHF:
% Truck: 3%

Left **78**

Thru **639**

Right **5**

EASTBOUND

97 Right

640 Thru

3 Left

Total: 740
PHF:
% Truck: 3%

WESTBOUND

9	**2**	**1**
Left	Thru	Right

Total: 12
PHF:
% Truck: 0%

NORTHBOUND

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

W ELLENDALE AVENUE AT JAMES HOWE ROAD

SOUTHBOUND

Total: 70
PHF:
% Truck: 0%

Right	Thru	Left
63	**2**	**5**

EASTBOUND

Total: 485
PHF:
% Truck: 1%

Left	**91**
Thru	**341**
Right	**53**

WESTBOUND

Total: 265
PHF:
% Truck: 4%

4	Right
255	Thru
6	Left

NORTHBOUND

Left	Thru	Right
31	**1**	**10**

Total: 42
PHF:
% Truck: 0%

Vehicular Turning Movement

Original 3-hr Count

August 4, 2004

W ELLENDALE AVENUE AT RIVER DRIVE

SOUTHBOUND

Total: 0
PHF:
% Truck: 0%

Right	Thru	Left
0	**0**	**0**

EASTBOUND

Total: 465
PHF:
% Truck: 6%

Left	**0**
Thru	**463**
Right	**2**

WESTBOUND

Total: 861
PHF:
% Truck: 4%

0	Right
657	Thru
204	Left

NORTHBOUND

Left	Thru	Right
3	**0**	**133**

Total: 136
PHF:
% Truck: 0%

Vehicular Turning Movement

30th Highest Hour Count

October 12, 2004

DALLAS-RICKREALL HIGHWAY AT ELLENDALE AVENUE

SOUTHBOUND

Total: 388
PHF:
% Truck: 3%

Right	Thru	Left
83	**201**	**104**

EASTBOUND

Total: 365
PHF:
% Truck: 6%

Left	**69**
Thru	**186**
Right	**109**

WESTBOUND

Total: 746
PHF:
% Truck: 2%

50	Right
316	Thru
379	Left

NORTHBOUND

Left	Thru	Right
64	**186**	**330**

Total: 580
PHF:
% Truck: 1%

Vehicular Turning Movement

Original 16-hr Count

August 17, 2004

DALLAS-RICKREALL HIGHWAY AT LaCREOLE DRIVE

SOUTHBOUND

Total: 251
PHF:
% Truck: 0%

Right	Thru	Left
106	**41**	**104**

EASTBOUND

Total: 6702
PHF:
% Truck: 6%

Left	**151**
Thru	**5199**
Right	**1352**

WESTBOUND

Total: 5910
PHF:
% Truck: 3%

44	Right
5175	Thru
691	Left

NORTHBOUND

Left	Thru	Right
1492	**48**	**744**

Total: 2284
PHF:
% Truck: 3%

Vehicular Turning Movement

Original 16-hr Count

September 14, 2004

KINGS VALLEY HIGHWAY AT LEVENS STREET

SOUTHBOUND

Total: 2538
PHF:
% Truck: 4%

Right	Thru	Left
1321	**227**	**990**

Total: 4673
PHF:
% Truck: 5%

Left **1089**

Thru **3561**

Right **23**

EASTBOUND

1011 Right

3166 Thru

125 Left

Total: 4302
PHF:
% Truck: 2%

WESTBOUND

20	**247**	**134**
Left	Thru	Right

Total: 401
PHF:
% Truck: 9%

NORTHBOUND

Vehicular Turning Movement

Original 16-hr Count

August 5, 2004

KINGS VALLEY HIGHWAY AT OAKDALE AVENUE

SOUTHBOUND

Total: 3480
PHF:
% Truck: 2%

Right	Thru	Left
581	**2836**	**63**

EASTBOUND

Total: 735
PHF:
% Truck: 2%

Left	**611**
Thru	**56**
Right	**68**

WESTBOUND

Total: 211
PHF:
% Truck: 7%

48	Right
52	Thru
111	Left

NORTHBOUND

Left	Thru	Right
48	**2783**	**113**

Total: 2944
PHF:
% Truck: 2%

Vehicular Turning Movement

Original 16-hr Count

September 14, 2004

MILLER AVENUE AT UGLOW STREET

SOUTHBOUND

Total: 104
PHF:
% Truck: 0%

Right	Thru	Left
4	**42**	**58**

EASTBOUND

Total: 3499
PHF:
% Truck: 2%

Left	**12**
Thru	**2991**
Right	**496**

WESTBOUND

Total: 4887
PHF:
% Truck: 4%

20	Right
2948	Thru
1919	Left

NORTHBOUND

559	**54**	**2321**
Left	Thru	Right

Total: 2934
PHF:
% Truck: 4%

Vehicular Turning Movement

Original 16-hr Count

August 5, 2004

MONMOUTH CUTOFF ROAD AT UGLOW STREET

SOUTHBOUND

Total: 3211
PHF:
% Truck: 8%

Right	Thru	Left
0	**565**	**2646**

EASTBOUND

Total: 0
PHF:
% Truck: 0%

Left	**0**
Thru	**0**
Right	**0**

WESTBOUND

Total: 2917
PHF:
% Truck: 10%

2740	Right
4	Thru
173	Left

NORTHBOUND

Left	Thru	Right
1	**589**	**208**

Total: 798
PHF:
% Truck: 13%

Vehicular Turning Movement

Original 16-hr Count

August 5, 2004

W ELLENDALE AVENUE AT LEVENS DRIVE

SOUTHBOUND

Total: 0
PHF:
% Truck: 0%

Right	Thru	Left
0	**0**	**0**

EASTBOUND

Total: 4409
PHF:
% Truck: 3%

Left	**0**
Thru	**2340**
Right	**2069**

WESTBOUND

Total: 3442
PHF:
% Truck: 1%

0	Right
2146	Thru
1296	Left

NORTHBOUND

2153	**0**	**1546**
Left	Thru	Right

Total: 3699
PHF:
% Truck: 1%

Vehicular Turning Movement

Original 16-hr Count

August 5, 2004

WASHINGTON STREET AT JEFFERSON STREET

SOUTHBOUND

Total: 3
PHF:
% Truck: 0%

Right	Thru	Left
3	**0**	**0**

EASTBOUND

Total: 8893
PHF:
% Truck: 4%

Left	**3753**
Thru	**5017**
Right	**123**

WESTBOUND

Total: 4504
PHF:
% Truck: 5%

1761	Right
2717	Thru
26	Left

NORTHBOUND

Left	Thru	Right
19	**246**	**40**

Total: 305
PHF:
% Truck: 0%

Vehicular Turning Movement

Original 16-hr Count

August 5, 2004

WASHINGTON STREET AT MAIN STREET

SOUTHBOUND

Total: 6674
PHF:
% Truck: 3%

Right	Thru	Left
2615	**1128**	**2931**

EASTBOUND

Total: 4583
PHF:
% Truck: 3%

Left	**0**
Thru	**4321**
Right	**262**

WESTBOUND

Total: 2382
PHF:
% Truck: 6%

2	Right
2264	Thru
116	Left

NORTHBOUND

Left	Thru	Right
418	**2**	**844**

Total: 1264
PHF:
% Truck: 2%

APPENDIX C

Existing Conditions (2004) Operational Analysis and Queue Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	16	12	12	16	12	12	12	15	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.99		1.00	1.00			1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.96		1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.98	
Satd. Flow (prot)	1613	1841		1660	1978			1666	1634		1902	
Flt Permitted	0.39	1.00		0.15	1.00			0.71	1.00		0.89	
Satd. Flow (perm)	655	1841		257	1978			1240	1634		1725	
Volume (vph)	5	465	155	95	530	5	185	10	85	5	5	5
Peak-hour factor, PHF	0.78	0.78	0.78	0.94	0.94	0.94	0.77	0.77	0.77	0.42	0.42	0.42
Adj. Flow (vph)	6	596	199	101	564	5	240	13	110	12	12	12
RTOR Reduction (vph)	0	9	0	0	0	0	0	0	83	0	9	0
Lane Group Flow (vph)	6	786	0	101	569	0	0	253	27	0	27	0
Confl. Peds. (#/hr)			2			1	1					1
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Turn Type	pm+pt			pm+pt			Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	45.6	44.7		54.3	49.4			20.3	20.3		20.3	
Effective Green, g (s)	47.1	46.2		55.8	50.9			20.3	20.3		20.3	
Actuated g/C Ratio	0.56	0.55		0.66	0.61			0.24	0.24		0.24	
Clearance Time (s)	4.0	5.5		4.0	5.5			4.0	4.0		4.0	
Vehicle Extension (s)	2.0	3.5		2.0	4.0			2.5	2.5		2.5	
Lane Grp Cap (vph)	377	1011		264	1197			299	394		416	
v/s Ratio Prot	0.00	c0.43		c0.03	0.29							
v/s Ratio Perm	0.01			0.23				c0.20	0.02		0.02	
v/c Ratio	0.02	0.78		0.38	0.48			0.85	0.07		0.06	
Uniform Delay, d1	8.4	14.9		11.4	9.2			30.4	24.6		24.6	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.0	3.9		0.3	0.4			19.0	0.1		0.0	
Delay (s)	8.4	18.9		11.8	9.6			49.4	24.7		24.6	
Level of Service	A	B		B	A			D	C		C	
Approach Delay (s)		18.8			9.9			41.9			24.6	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	10	14	12	12	12	14	13	15	12	13	16	12
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	0.97		1.00	1.00	
Flt Protected	0.95	1.00			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1555	1783			1654	1527	1699	1847		1767	2033	
Flt Permitted	0.70	1.00			0.73	1.00	0.53	1.00		0.30	1.00	
Satd. Flow (perm)	1152	1783			1262	1527	942	1847		567	2033	
Volume (vph)	15	10	5	65	5	260	5	280	60	220	250	5
Peak-hour factor, PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.75	0.75	0.75	0.64	0.64	0.64
Adj. Flow (vph)	17	11	6	76	6	306	7	373	80	344	391	8
RTOR Reduction (vph)	0	5	0	0	0	253	0	7	0	0	0	0
Lane Group Flow (vph)	17	12	0	0	82	53	7	446	0	344	399	0
Confl. Peds. (#/hr)	6					6			1			3
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	4%	4%	0%	0%	0%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	9.3	9.3			9.3	9.3	22.0	21.4		34.9	30.3	
Effective Green, g (s)	9.3	9.3			9.3	9.3	23.0	22.4		35.9	31.3	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	0.43	0.42		0.67	0.59	
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.2	3.0		2.2	3.0	
Lane Grp Cap (vph)	201	312			221	267	416	778		597	1196	
v/s Ratio Prot		0.01					0.00	0.24		c0.10	0.20	
v/s Ratio Perm	0.01				c0.06	0.04	0.01			c0.29		
v/c Ratio	0.08	0.04			0.37	0.20	0.02	0.57		0.58	0.33	
Uniform Delay, d1	18.4	18.2			19.4	18.8	8.6	11.8		5.1	5.6	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0			0.8	0.3	0.0	1.0		0.9	0.2	
Delay (s)	18.5	18.3			20.1	19.0	8.6	12.8		6.0	5.8	
Level of Service	B	B			C	B	A	B		A	A	
Approach Delay (s)		18.4			19.3			12.7			5.9	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	53.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	12	12	14	13	12	12	12	15	16	16	12
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Frpb, ped/bikes		1.00	0.97	1.00	1.00		1.00		0.96	1.00	0.98	
Flpb, ped/bikes		1.00	1.00	0.99	1.00		1.00		1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00		1.00		0.85	1.00	0.88	
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		1748	1257	1712	1535		1676		1384	1646	1453	
Flt Permitted		1.00	1.00	0.23	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (perm)		1748	1257	420	1535		1676		1384	1646	1453	
Volume (vph)	0	380	30	25	320	0	45	0	90	300	85	320
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.88	0.88	0.88	0.83	0.83	0.83
Adj. Flow (vph)	0	442	35	27	344	0	51	0	102	361	102	386
RTOR Reduction (vph)	0	0	24	0	0	0	0	0	89	0	94	0
Lane Group Flow (vph)	0	442	11	27	344	0	51	0	13	361	394	0
Confl. Peds. (#/hr)			8	8					13			4
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Parking (#/hr)			5		5	5			5	5	10	5
Turn Type			Perm	Perm			Prot		custom	Split		
Protected Phases		2			6		8			4	4	
Permitted Phases			2	6					8			
Actuated Green, G (s)		23.0	23.0	23.0	23.0		9.0		9.0	29.4	29.4	
Effective Green, g (s)		23.0	23.0	23.0	23.0		9.0		9.0	29.4	29.4	
Actuated g/C Ratio		0.31	0.31	0.31	0.31		0.12		0.12	0.40	0.40	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5		2.5		2.5	2.5	2.5	
Lane Grp Cap (vph)		548	394	132	481		206		170	659	582	
v/s Ratio Prot		c0.25			0.22		c0.03			0.22	c0.27	
v/s Ratio Perm			0.01	0.06					0.01			
v/c Ratio		0.81	0.03	0.20	0.72		0.25		0.07	0.55	0.68	
Uniform Delay, d1		23.2	17.5	18.5	22.3		29.1		28.5	16.9	18.1	
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Incremental Delay, d2		8.3	0.0	0.6	4.7		0.5		0.1	0.7	2.8	
Delay (s)		31.4	17.5	19.0	27.0		29.6		28.6	17.6	20.9	
Level of Service		C	B	B	C		C		C	B	C	
Approach Delay (s)		30.4			26.4			29.0			19.5	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	73.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NEL	NET	NER	NER2
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	13	15	12	16	12	14	13	12	12	14	14	12
Total Lost time (s)	4.0	4.0		4.0		4.0	4.0			4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00		0.95	0.95			1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00		1.00	1.00			1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00		1.00	1.00			1.00	1.00	
Frt	1.00	0.99		0.85		1.00	0.98			1.00	0.85	
Flt Protected	0.95	1.00		1.00		1.00	1.00			0.99	1.00	
Satd. Flow (prot)	1667	1853		1636		1788	1697			1883	1616	
Flt Permitted	0.95	1.00		1.00		0.95	0.83			0.95	1.00	
Satd. Flow (perm)	1667	1853		1636		1699	1402			1806	1616	
Volume (vph)	70	190	10	110	5	380	300	50	60	260	330	15
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	202	11	117	5	413	326	54	65	283	359	16
RTOR Reduction (vph)	0	0	0	0	0	0	4	0	0	0	1	0
Lane Group Flow (vph)	74	213	0	117	0	397	397	0	0	348	374	0
Confl. Bikes (#/hr)												
Heavy Vehicles (%)	6%	6%	6%	6%	2%	2%	2%	2%	1%	1%	1%	1%
Turn Type	Split			Free	Perm	Perm			Perm		custom	
Protected Phases	3	3					6			5	2 8	
Permitted Phases				Free	6	6			5			
Actuated Green, G (s)	19.3	19.3		139.7		30.1	30.1			20.1	76.1	
Effective Green, g (s)	20.3	20.3		139.7		31.6	31.6			21.1	77.6	
Actuated g/C Ratio	0.15	0.15		1.00		0.23	0.23			0.15	0.56	
Clearance Time (s)	5.0	5.0				5.5	5.5			5.0		
Vehicle Extension (s)	4.0	4.0				5.5	5.5			4.0		
Lane Grp Cap (vph)	242	269		1636		384	317			273	898	
v/s Ratio Prot	0.04	c0.11									c0.23	
v/s Ratio Perm				0.07		0.23	c0.28			c0.19		
v/c Ratio	0.31	0.79		0.07		1.03	1.25			1.27	0.42	
Uniform Delay, d1	53.4	57.7		0.0		54.0	54.0			59.3	18.0	
Progression Factor	1.00	1.00		1.00		1.00	1.00			1.00	1.00	
Incremental Delay, d2	1.0	15.4		0.1		54.9	137.1			149.0	0.8	
Delay (s)	54.4	73.1		0.1		109.0	191.1			208.3	18.7	
Level of Service	D	E		A		F	F			F	B	
Approach Delay (s)		48.5					150.3			110.0		
Approach LOS		D					F			F		

Intersection Summary			
HCM Average Control Delay	105.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	139.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SWL2	SWL	SWT	SWR
Lane Configurations				
Ideal Flow (vphpl)	1800	1800	1800	1800
Lane Width	12	14	16	12
Total Lost time (s)		4.0	4.0	
Lane Util. Factor		1.00	1.00	
Frpb, ped/bikes		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	
Frt		1.00	0.96	
Flt Protected		0.95	1.00	
Satd. Flow (prot)		1771	1901	
Flt Permitted		0.55	1.00	
Satd. Flow (perm)		1029	1901	
Volume (vph)	105	5	280	85
Peak-hour factor, PHF	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	5	292	89
RTOR Reduction (vph)	0	0	8	0
Lane Group Flow (vph)	0	114	373	0
Confl. Bikes (#/hr)				1
Heavy Vehicles (%)	3%	3%	3%	3%
Turn Type	Perm	Perm		
Protected Phases			4	
Permitted Phases	4	4		
Actuated Green, G (s)		28.8	28.8	
Effective Green, g (s)		29.8	29.8	
Actuated g/C Ratio		0.21	0.21	
Clearance Time (s)		5.0	5.0	
Vehicle Extension (s)		4.0	4.0	
Lane Grp Cap (vph)		220	406	
v/s Ratio Prot			c0.20	
v/s Ratio Perm		0.11		
v/c Ratio		0.52	0.92	
Uniform Delay, d1		48.6	53.8	
Progression Factor		1.00	1.00	
Incremental Delay, d2		2.7	25.8	
Delay (s)		51.3	79.5	
Level of Service		D	E	
Approach Delay (s)			73.0	
Approach LOS			E	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	16	12	14	16	12	12	16	12	12	14	16
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			0.99			1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			0.99	1.00
Frt	1.00	1.00		1.00	0.97			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.97	1.00
Satd. Flow (prot)	1574	1937		1788	1916			1795			1765	1629
Flt Permitted	0.95	1.00		0.95	1.00			0.96			0.82	1.00
Satd. Flow (perm)	1574	1937		1788	1916			1739			1501	1629
Volume (vph)	125	310	5	20	520	145	5	30	10	90	35	220
Peak-hour factor, PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.69	0.69	0.69	0.93	0.93	0.93
Adj. Flow (vph)	137	341	5	21	547	153	7	43	14	97	38	237
RTOR Reduction (vph)	0	0	0	0	8	0	0	12	0	0	0	203
Lane Group Flow (vph)	137	346	0	21	692	0	0	52	0	0	135	34
Confl. Peds. (#/hr)			12			15	2		14	14		2
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	9%	9%	9%	4%	4%	4%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	8.9	48.8		2.3	42.2			10.4			10.4	10.4
Effective Green, g (s)	8.9	48.8		2.3	42.2			10.4			10.4	10.4
Actuated g/C Ratio	0.12	0.66		0.03	0.57			0.14			0.14	0.14
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	2.5	4.6		2.5	4.6			2.5			2.5	2.5
Lane Grp Cap (vph)	191	1286		56	1100			246			212	230
v/s Ratio Prot	c0.09	0.18		0.01	c0.36							
v/s Ratio Perm								0.03			c0.09	0.02
v/c Ratio	0.72	0.27		0.38	0.63			0.21			0.64	0.15
Uniform Delay, d1	31.1	5.1		34.9	10.4			27.9			29.8	27.7
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	11.3	0.2		3.1	1.5			0.3			5.4	0.2
Delay (s)	42.4	5.3		37.9	11.9			28.2			35.2	27.9
Level of Service	D	A		D	B			C			D	C
Approach Delay (s)		15.8			12.7			28.2			30.5	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	73.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	30	555	670	50	70	35
Peak Hour Factor	0.91	0.91	0.92	0.92	0.78	0.78
Hourly flow rate (vph)	33	610	728	54	90	45
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	783				1431	755
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	783				1431	755
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				37	89
cM capacity (veh/h)	835				142	408

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	33	610	783	135
Volume Left	33	0	0	90
Volume Right	0	0	54	45
cSH	835	1700	1700	182
Volume to Capacity	0.04	0.36	0.46	0.74
Queue Length 95th (ft)	3	0	0	119
Control Delay (s)	9.5	0.0	0.0	66.6
Lane LOS	A			F
Approach Delay (s)	0.5		0.0	66.6
Approach LOS				F

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Volume (veh/h)	260	130	215	230	180	120
Peak Hour Factor	0.83	0.83	0.83	0.83	0.79	0.79
Hourly flow rate (vph)	313	157	259	277	228	152
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		7				
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	608	0	612	456	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	608	0	612	456	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	11	86	0	36	86	
cM capacity (veh/h)	352	1082	75	432	1630	

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total	470	259	277	228	152
Volume Left	0	259	0	228	0
Volume Right	157	0	0	0	152
cSH	528	75	432	1630	1700
Volume to Capacity	0.89	3.46	0.64	0.14	0.09
Queue Length 95th (ft)	253	Err	109	12	0
Control Delay (s)	42.4	Err	27.1	7.6	0.0
Lane LOS	E	F	D	A	
Approach Delay (s)	42.4	4845.0		4.5	
Approach LOS	E	F			

Intersection Summary			
Average Delay	1890.1		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	545	620	5	5	10
Peak Hour Factor	0.85	0.85	0.94	0.94	0.75	0.75
Hourly flow rate (vph)	12	641	660	5	7	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	665				1327	662
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	665				1327	662
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	97
cM capacity (veh/h)	920				171	465

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	653	665	20
Volume Left	12	0	7
Volume Right	0	5	13
cSH	920	1700	295
Volume to Capacity	0.01	0.39	0.07
Queue Length 95th (ft)	1	0	5
Control Delay (s)	0.3	0.0	18.1
Lane LOS	A		C
Approach Delay (s)	0.3	0.0	18.1
Approach LOS			C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	105	480	5	10	440	40	10	5	5	25	5	135
Peak Hour Factor	0.97	0.97	0.97	0.84	0.84	0.84	0.45	0.45	0.45	0.80	0.80	0.80
Hourly flow rate (vph)	108	495	5	12	524	48	22	11	11	31	6	169
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									8			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	571			500			1433	1309	497	1294	1288	548
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	571			500			1433	1309	497	1294	1288	548
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			99			67	92	98	73	96	69
cM capacity (veh/h)	1001			1054			68	142	577	117	145	536

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	108	500	12	571	44	206
Volume Left	108	0	12	0	22	31
Volume Right	0	5	0	48	11	169
cSH	1001	1700	1054	1700	123	330
Volume to Capacity	0.11	0.29	0.01	0.34	0.36	0.62
Queue Length 95th (ft)	9	0	1	0	37	99
Control Delay (s)	9.0	0.0	8.5	0.0	51.1	32.4
Lane LOS	A		A		F	D
Approach Delay (s)	1.6		0.2		51.1	32.4
Approach LOS					F	D

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	120	80	130	25	35	135
Peak Hour Factor	0.78	0.78	0.84	0.84	0.92	0.92
Hourly flow rate (vph)	154	103	155	30	38	147
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	185				580	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	185				580	170
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	89				91	83
cM capacity (veh/h)	1396				424	874

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	256	185	185
Volume Left	154	0	38
Volume Right	0	30	147
cSH	1396	1700	717
Volume to Capacity	0.11	0.11	0.26
Queue Length 95th (ft)	9	0	26
Control Delay (s)	5.1	0.0	11.7
Lane LOS	A		B
Approach Delay (s)	5.1	0.0	11.7
Approach LOS			B

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	150	135	5	10	175	120	5	10	5	85	20	150
Peak Hour Factor	0.87	0.87	0.87	0.89	0.89	0.89	0.65	0.65	0.65	0.86	0.86	0.86
Hourly flow rate (vph)	172	155	6	11	197	135	8	15	8	99	23	174
Pedestrians								4			5	
Lane Width (ft)								16.0			12.5	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	336			165			912	866	162	807	801	269
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	336			165			912	866	162	807	801	269
tC, single (s)	4.1			4.1			7.2	6.6	6.3	7.2	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	86			99			95	94	99	60	91	77
cM capacity (veh/h)	1206			1413			158	242	869	245	265	759

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	172	161	11	331	31	99	198
Volume Left	172	0	11	0	8	99	0
Volume Right	0	6	0	135	8	0	174
cSH	1206	1700	1413	1700	254	245	622
Volume to Capacity	0.14	0.09	0.01	0.19	0.12	0.40	0.32
Queue Length 95th (ft)	12	0	1	0	10	46	34
Control Delay (s)	8.5	0.0	7.6	0.0	21.1	29.3	13.5
Lane LOS	A		A		C	D	B
Approach Delay (s)	4.4		0.2		21.1	18.7	
Approach LOS					C	C	

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	5	25	15	5	20	40	635	35	35	715	20
Peak Hour Factor	0.61	0.61	0.61	0.88	0.88	0.88	0.85	0.85	0.85	0.95	0.95	0.95
Hourly flow rate (vph)	16	8	41	17	6	23	47	747	41	37	753	21
Pedestrians		12			15						2	
Lane Width (ft)		16.0			16.0						13.5	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		1			2						0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1718	1746	775	1748	1736	785	786			803		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1718	1746	775	1748	1736	785	786			803		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	71	89	90	66	93	94	94			95		
cM capacity (veh/h)	57	76	396	50	77	389	822			807		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	66	45	47	788	37	774
Volume Left	16	17	47	0	37	0
Volume Right	41	23	0	41	0	21
cSH	131	96	822	1700	807	1700
Volume to Capacity	0.50	0.47	0.06	0.46	0.05	0.46
Queue Length 95th (ft)	59	51	5	0	4	0
Control Delay (s)	57.4	72.7	9.6	0.0	9.7	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	57.4	72.7	0.5		0.4	
Approach LOS	F	F				

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	50	0	265	55	0	295
Peak Hour Factor	0.96	0.96	0.82	0.82	0.98	0.98
Hourly flow rate (vph)	52	0	323	67	0	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			52		765	52
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			52		765	52
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			79		100	70
cM capacity (veh/h)			1516		283	993

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	52	390	301
Volume Left	0	323	0
Volume Right	0	0	301
cSH	1700	1516	993
Volume to Capacity	0.03	0.21	0.30
Queue Length 95th (ft)	0	20	32
Control Delay (s)	0.0	6.9	10.2
Lane LOS		A	B
Approach Delay (s)	0.0	6.9	10.2
Approach LOS			B

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	170	55	30	235	70	30
Peak Hour Factor	0.84	0.84	0.92	0.92	0.87	0.87
Hourly flow rate (vph)	202	65	33	255	80	34
Pedestrians					4	
Lane Width (ft)					13.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			272		560	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			272		560	239
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		83	96
cM capacity (veh/h)			1287		472	792

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	268	288	115
Volume Left	0	33	80
Volume Right	65	0	34
cSH	1700	1287	537
Volume to Capacity	0.16	0.03	0.21
Queue Length 95th (ft)	0	2	20
Control Delay (s)	0.0	1.1	13.5
Lane LOS		A	B
Approach Delay (s)	0.0	1.1	13.5
Approach LOS			B

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	25	260	5	5	250	70	5	5	5	25	5	55
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.63	0.63	0.63	0.68	0.68	0.68
Hourly flow rate (vph)	27	280	5	6	281	79	8	8	8	37	7	81
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	360			285			752	707	282	679	670	320
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	360			285			752	707	282	679	670	320
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	98			100			97	98	99	89	98	88
cM capacity (veh/h)	1194			1272			281	353	761	337	357	700

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	312	365	24	125
Volume Left	27	6	8	37
Volume Right	5	79	8	81
cSH	1194	1272	389	510
Volume to Capacity	0.02	0.00	0.06	0.25
Queue Length 95th (ft)	2	0	5	24
Control Delay (s)	0.9	0.2	14.9	14.3
Lane LOS	A	A	B	B
Approach Delay (s)	0.9	0.2	14.9	14.3
Approach LOS			B	B

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	50	60	35	35	0	0	0	0	70	610	135
Peak Hour Factor	0.70	0.70	0.70	0.69	0.69	0.69	0.90	0.90	0.90	0.92	0.92	0.92
Hourly flow rate (vph)	0	71	86	51	51	0	0	0	0	76	663	147
Pedestrians								13				
Lane Width (ft)								0.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								810				
pX, platoon unblocked												
vC, conflicting volume	914	889	418	618	962	0	810			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	914	889	418	618	962	0	810			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	74	85	80	79	100	100			95		
cM capacity (veh/h)	188	271	589	248	246	1091	825			1629		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	157	101	408	478
Volume Left	0	51	76	0
Volume Right	86	0	0	147
cSH	385	247	1629	1700
Volume to Capacity	0.41	0.41	0.05	0.28
Queue Length 95th (ft)	49	47	4	0
Control Delay (s)	20.7	29.4	1.7	0.0
Lane LOS	C	D	A	
Approach Delay (s)	20.7	29.4	0.8	
Approach LOS	C	D		

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	85	35	0	0	30	165	40	415	15	0	0	0
Peak Hour Factor	0.98	0.98	0.98	0.83	0.83	0.83	0.99	0.99	0.99	0.90	0.90	0.90
Hourly flow rate (vph)	87	36	0	0	36	199	40	419	15	0	0	0
Pedestrians		2									1	
Lane Width (ft)		16.0									0.0	
Walking Speed (ft/s)		4.0									4.0	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	510	517	2	525	510	218	2			434		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	510	517	2	525	510	218	2			434		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	92	100	100	92	75	97			100		
cM capacity (veh/h)	309	452	1085	400	453	786	1608			1136		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	122	235	250	225
Volume Left	87	0	40	0
Volume Right	0	199	0	15
cSH	340	706	1608	1700
Volume to Capacity	0.36	0.33	0.03	0.13
Queue Length 95th (ft)	40	36	2	0
Control Delay (s)	21.4	12.6	1.4	0.0
Lane LOS	C	B	A	
Approach Delay (s)	21.4	12.6	0.7	
Approach LOS	C	B		

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	710	0	755	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	772	0	821	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	821				772	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	821				772	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	808				368	1085

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	0	772	821
Volume Left	0	0	0
Volume Right	0	0	821
cSH	1700	1700	1700
Volume to Capacity	0.00	0.45	0.48
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	290	470	10	5	340	150	5	30	5	0	0	0
Peak Hour Factor	0.81	0.81	0.81	0.91	0.91	0.91	0.78	0.78	0.78	0.90	0.90	0.90
Hourly flow rate (vph)	358	580	12	5	374	165	6	38	6	0	0	0
Pedestrians		15			5			7			11	
Lane Width (ft)		14.5			16.0			15.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		387										
pX, platoon unblocked				0.89			0.89	0.89	0.89	0.89	0.89	
vC, conflicting volume	549			600			1792	1870	598	1805	1794	482
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	549			548			1894	1983	546	1909	1897	482
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	65			99			81	0	99	0	100	100
cM capacity (veh/h)	1010			885			33	35	473	0	40	580

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	358	593	544	51
Volume Left	358	0	5	6
Volume Right	0	12	165	6
cSH	1010	1700	885	39
Volume to Capacity	0.35	0.35	0.01	1.30
Queue Length 95th (ft)	40	0	0	130
Control Delay (s)	10.5	0.0	0.2	406.3
Lane LOS	B		A	F
Approach Delay (s)	4.0		0.2	406.3
Approach LOS				F

Intersection Summary			
Average Delay	16.0		
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	5	5	50	5	40	5	85	35	60	70	10
Peak Hour Factor	0.69	0.69	0.69	0.84	0.84	0.84	0.89	0.89	0.89	0.86	0.86	0.86
Hourly flow rate (vph)	14	7	7	60	6	48	6	96	39	70	81	12
Pedestrians		2									1	
Lane Width (ft)		12.0									16.0	
Walking Speed (ft/s)		4.0									4.0	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)											1129	
pX, platoon unblocked												
vC, conflicting volume	407	375	89	364	361	116	95			135		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	407	375	89	364	361	116	95			135		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	97	99	99	89	99	95	100			95		
cM capacity (veh/h)	487	516	948	542	522	911	1430			1437		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	29	113	140	163
Volume Left	14	60	6	70
Volume Right	7	48	39	12
cSH	564	652	1430	1437
Volume to Capacity	0.05	0.17	0.00	0.05
Queue Length 95th (ft)	4	16	0	4
Control Delay (s)	11.7	11.7	0.3	3.5
Lane LOS	B	B	A	A
Approach Delay (s)	11.7	11.7	0.3	3.5
Approach LOS	B	B		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	40	5	5	10	5	5	5	215	15	15	335	60
Peak Hour Factor	0.77	0.77	0.77	0.54	0.54	0.54	0.94	0.94	0.94	0.90	0.90	0.90
Hourly flow rate (vph)	52	6	6	19	9	9	5	229	16	17	372	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	700	694	406	696	720	237	439			245		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	700	694	406	696	720	237	439			245		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	85	98	99	95	97	99	100			99		
cM capacity (veh/h)	338	360	645	337	342	790	1121			1321		

Direction, Lane #	EB 1	WB 1	NE 1	SW 1
Volume Total	65	37	250	456
Volume Left	52	19	5	17
Volume Right	6	9	16	67
cSH	357	395	1121	1321
Volume to Capacity	0.18	0.09	0.00	0.01
Queue Length 95th (ft)	16	8	0	1
Control Delay (s)	17.3	15.1	0.2	0.4
Lane LOS	C	C	A	A
Approach Delay (s)	17.3	15.1	0.2	0.4
Approach LOS	C	C		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	45	10	5	190	270	80
Peak Hour Factor	0.68	0.68	0.90	0.90	0.84	0.84
Hourly flow rate (vph)	66	15	6	211	321	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	591	369	417			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	591	369	417			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	98	100			
cM capacity (veh/h)	467	677	1142			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	81	217	417
Volume Left	66	6	0
Volume Right	15	0	95
cSH	495	1142	1700
Volume to Capacity	0.16	0.00	0.25
Queue Length 95th (ft)	14	0	0
Control Delay (s)	13.7	0.3	0.0
Lane LOS	B	A	
Approach Delay (s)	13.7	0.3	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	175	190	15	5	275	60	15	5	5	65	10	185
Peak Hour Factor	0.86	0.86	0.86	0.91	0.91	0.91	0.66	0.66	0.66	0.94	0.94	0.94
Hourly flow rate (vph)	203	221	17	5	302	66	23	8	8	69	11	197
Pedestrians					3							
Lane Width (ft)					16.0							
Walking Speed (ft/s)					4.0							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		407										
pX, platoon unblocked				0.97			0.97	0.97	0.97	0.97	0.97	
vC, conflicting volume	368			238			1185	1016	233	988	992	335
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368			215			1191	1016	209	988	991	335
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			100			76	96	99	62	95	72
cM capacity (veh/h)	1185			1303			97	192	809	182	197	707

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	203	238	374	38	69	207
Volume Left	203	0	5	23	69	0
Volume Right	0	17	66	8	0	197
cSH	1185	1700	1303	133	182	624
Volume to Capacity	0.17	0.14	0.00	0.28	0.38	0.33
Queue Length 95th (ft)	15	0	0	27	41	36
Control Delay (s)	8.7	0.0	0.2	42.4	36.4	13.6
Lane LOS	A		A	E	E	B
Approach Delay (s)	4.0		0.2	42.4	19.3	
Approach LOS				E	C	

Intersection Summary			
Average Delay	7.8		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	5	5	30	10	30	30	220	10	15	135	20
Peak Hour Factor	0.81	0.81	0.81	0.85	0.85	0.85	0.90	0.90	0.90	0.91	0.91	0.91
Hourly flow rate (vph)	6	6	6	35	12	35	33	244	11	16	148	22
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	550	520	250	518	515	159	170			256		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	550	520	250	518	515	159	170			256		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	99	92	97	96	98			99		
cM capacity (veh/h)	410	447	794	445	446	883	1395			1292		

Direction, Lane #	NB 1	SB 1	NE 1	SW 1
Volume Total	19	82	289	187
Volume Left	6	35	33	16
Volume Right	6	35	11	22
cSH	505	565	1395	1292
Volume to Capacity	0.04	0.15	0.02	0.01
Queue Length 95th (ft)	3	13	2	1
Control Delay (s)	12.4	12.4	1.1	0.8
Lane LOS	B	B	A	A
Approach Delay (s)	12.4	12.4	1.1	0.8
Approach LOS	B	B		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	35	300	30	10	285	10	10	5	10	5	5	25
Peak Hour Factor	0.85	0.85	0.85	0.81	0.81	0.81	0.60	0.60	0.60	0.79	0.79	0.79
Hourly flow rate (vph)	41	353	35	12	352	12	17	8	17	6	6	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	364			388			870	842	371	856	853	358
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	364			388			870	842	371	856	853	358
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			93	97	98	98	98	95
cM capacity (veh/h)	1200			1159			248	290	680	258	285	691

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	429	377	42	44
Volume Left	41	12	17	6
Volume Right	35	12	17	32
cSH	1200	1159	346	479
Volume to Capacity	0.03	0.01	0.12	0.09
Queue Length 95th (ft)	3	1	10	8
Control Delay (s)	1.1	0.4	16.8	13.3
Lane LOS	A	A	C	B
Approach Delay (s)	1.1	0.4	16.8	13.3
Approach LOS			C	B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	310	5	110	300	5	80
Peak Hour Factor	0.86	0.86	0.87	0.87	0.92	0.92
Hourly flow rate (vph)	360	6	126	345	5	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			366		961	363
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			366		961	363
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		98	87
cM capacity (veh/h)			1181		256	686

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	366	471	92
Volume Left	0	126	5
Volume Right	6	0	87
cSH	1700	1181	624
Volume to Capacity	0.22	0.11	0.15
Queue Length 95th (ft)	0	9	13
Control Delay (s)	0.0	3.1	11.8
Lane LOS		A	B
Approach Delay (s)	0.0	3.1	11.8
Approach LOS			B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Turn-Lane Queuing Analysis

TABLE 14
2004 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
Washington Street & Levens Street				
	Eastbound	Left	150	140
		Thru/Right		170
	Westbound	Left	130	40
		Thru/Right		520
	Northbound	Left/Thru/Right		50
	Southbound	Thru/Left		130
		Right	220	60
Dallas-Rickreall Hwy & Kings Valley Hwy				
	Eastbound	Left	90	120
		Thru/Right		330
		Hard Right		0
	Westbound	Left/Hard Left	200	680
		Left/Thru/Right		680
	Northbound	Thru/Left		650
		Right/Hard Right		290
	Southbound	Left/Hard Left	90	180
		Thru/Right		590
Dallas-Rickreall Hwy & LaCreole Drive				
	Eastbound	Left	160	10
		Thru/Right		550
	Westbound	Left	150	60
		Thru/Right		340
	Northbound	Left/Thru	130	190
		Right		40
	Southbound	Left/Thru/Right		20
Washington Street & Main Street				
	Eastbound	Thru		340
		Right		20
	Westbound	Left	90	40
		Thru		290
	Northbound	Left	90	60
		Right		40
	Southbound	Left		290
		Thru/Right		360
Miller Avenue & Uglow Street				
	Eastbound	Left		30
		Thru/Right		20
	Westbound	Left/Thru	120	70
		Right		50

TABLE 14
2004 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
	Northbound	Left	80	10
		Thru/Right		220
	Southbound	Left	120	80
		Thru/Right		120
Kings Valley Hwy & Bridlewood Drive				
	Eastbound	Left/Right		10
	Northbound	Left/Thru		0
	Southbound	Thru/Right		0
Kings Valley Hwy & Oakdale Avenue				
	Eastbound	Left/Thru/Right		20
	Westbound	Left/Thru/Right		10
	Northbound	Left/Thru/Right		0
	Southbound	Left/Thru/Right		10
Kings Valley Hwy & Walnut Avenue				
	Eastbound	Left/Thru/Right		40
	Westbound	Left/Thru/Right		50
	Northbound	Left/Thru/Right		10
	Southbound	Left	100	10
		Thru/Right		0
Kings Valley Hwy & Orchard Drive				
	Eastbound	Left	100	20
		Thru/Right		0
	Westbound	Left/Thru/Right		0
	Northbound	Left/Thru/Right		20
	Southbound	Left	110	50
		Thru/Right		10
Kings Valley Hwy & Polk Station Road				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		10
	Northbound	Left/Thru/Right		10
	Southbound	Left/Thru/Right		10
Dallas-Rickreall Hwy & Fir Villa Road				
	Eastbound	Left	110	10
		Thru/Right		0
	Westbound	Left	120	10
		Thru/Right		0
	Northbound	Left/Thru		20
		Right	200	20
	Southbound	Left/Thru/Right		80
Dallas-Rickreall Hwy & Oak Villa Road				
	Eastbound	Left/Thru		10
	Westbound	Thru/Right		0
	Southbound	Left/Right		10
Dallas-Rickreall Hwy & Polk Station Road				

TABLE 14
2004 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
	Eastbound	Left	100	10
		Right		0
	Westbound	Thru/Right		0
	Southbound	Left/Right		100
Monmouth Cutoff Road & Uglow Street				
	Westbound	Right		40
	Northbound	Thru		0
	Southbound	Left/Thru		20
Monmouth Cutoff Road & Godsey Road				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		0
	Northbound	Left/Thru/Right		10
	Southbound	Left/Thru/Right		20
W Ellendale Ave & James Howe Road				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		10
	Northbound	Left/Thru/Right		10
	Southbound	Left/Thru/Right		10
W Ellendale Ave & River Drive				
	Eastbound	Thru/Right		0
	Westbound	Left/Thru		10
	Northbound	Left/Right		20
W Ellendale Ave & Levens Drive				
	Eastbound	Thru		160
		Right	170	160
	Westbound	Left	110	430
		Thru		80
	Northbound	Left		10
		Right	110	0
Washington Street & Jefferson Street				
	Eastbound	Left	90	40
		Thru/Right		0
	Westbound	Left/Thru/Right		0
	Northbound	Left/Thru/Right		90
Mill Street & Main Street				
	Eastbound	Thru/Right		40
	Westbound	Left/Thru		30
	Southbound	Left/Thru		10
		Thru/Right		10
Mill Street & Jefferson Street				
	Eastbound	Left/Thru		50
	Westbound	Thru/Right		10
	Northbound	Left/Thru		10

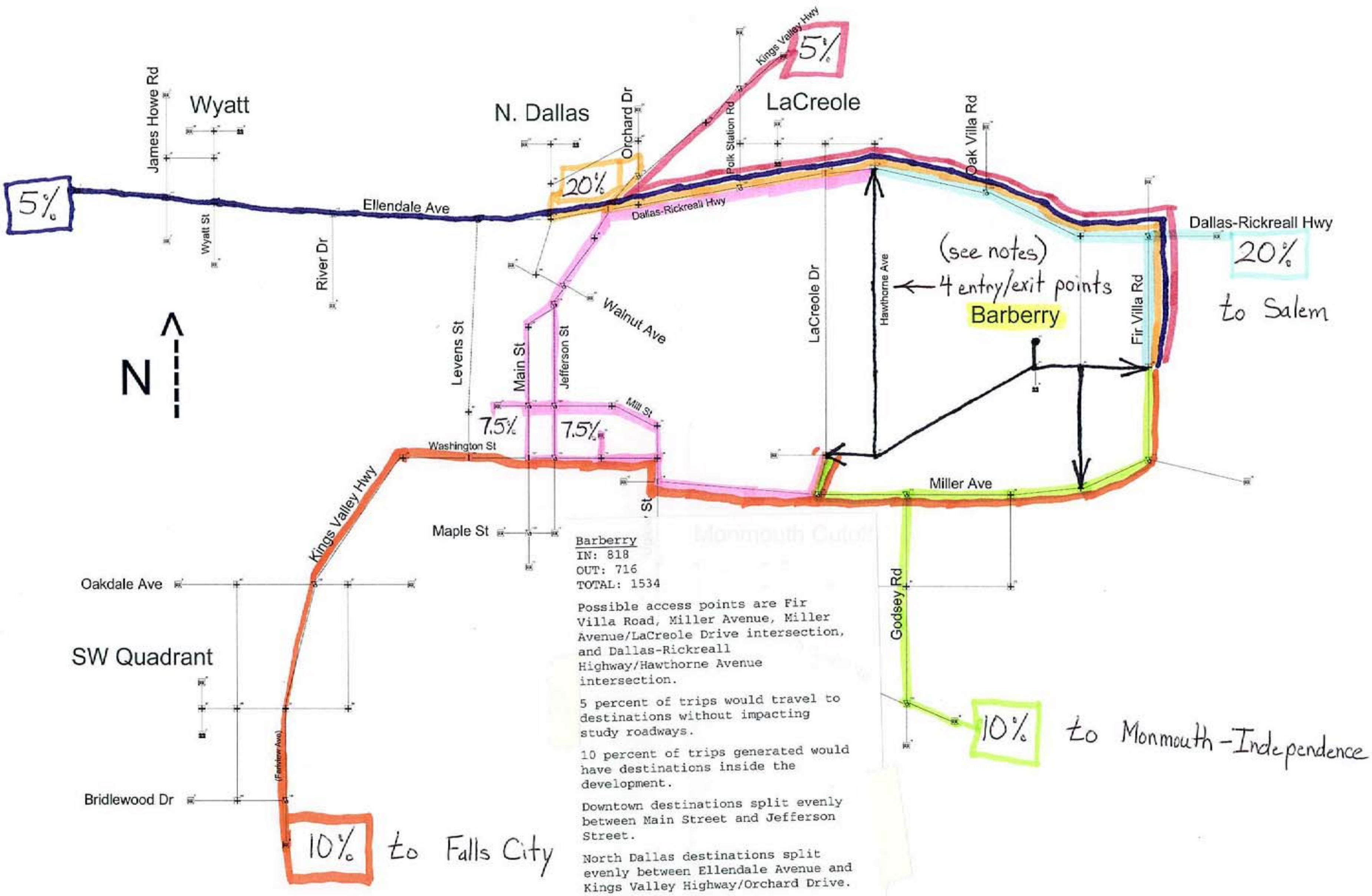
TABLE 14
2004 30th Highest Hour Queue Analysis

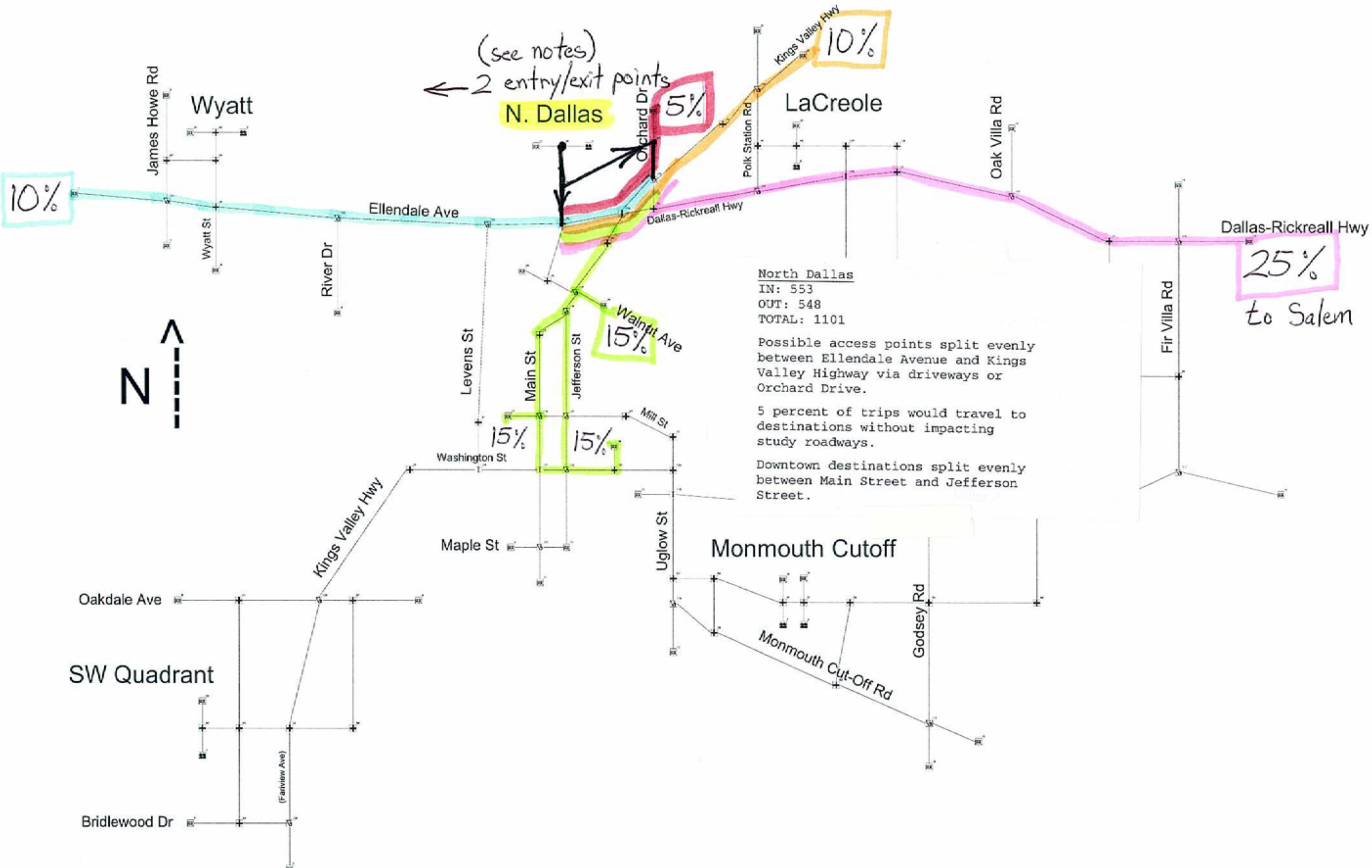
Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
		Thru/Right		10
Main Street & Maple Street				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		20
	Northbound	Left/Thru/Right		0
	Southbound	Left/Thru/Right		10
Miller Avenue & LaCreole Drive				
	Eastbound	Left	110	20
		Thru/Right		0
	Westbound	Left	130	10
		Thru/Right		0
	Northbound	Left/Thru/Right		10
	Southbound	Left	160	40
		Thru/Right		30
Miller Avenue & Godsey Road				
	Eastbound	Thru/Right		0
	Westbound	Left/Thru		10
	Northbound	Left/Right		20
Miller Avenue & Fir Villa Road				
	Eastbound	Left/Thru		10
	Westbound	Thru/Right		0
	Southbound	Left/Right		30

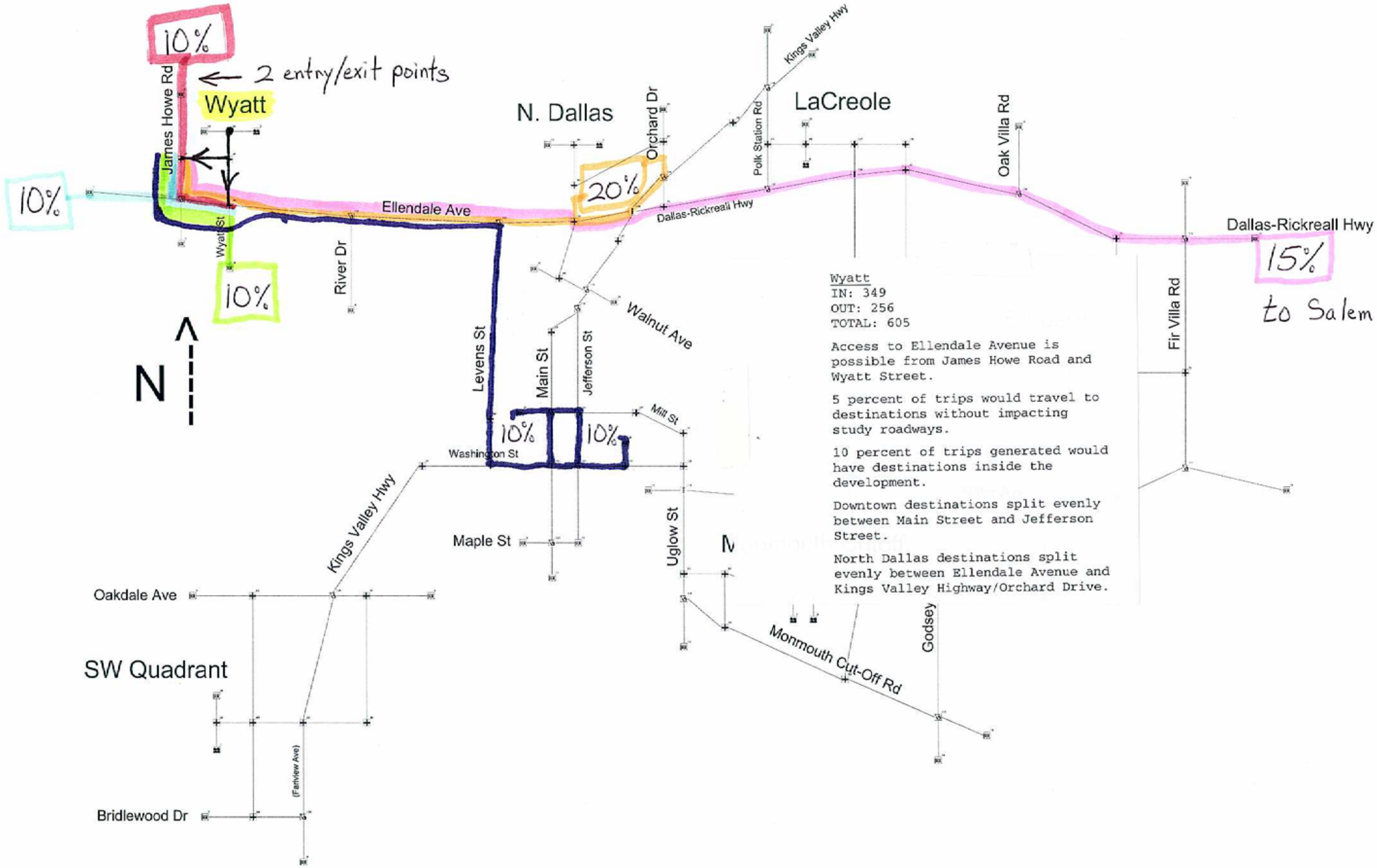
Queue lengths were rounded up to the nearest ten feet.

APPENDIX D

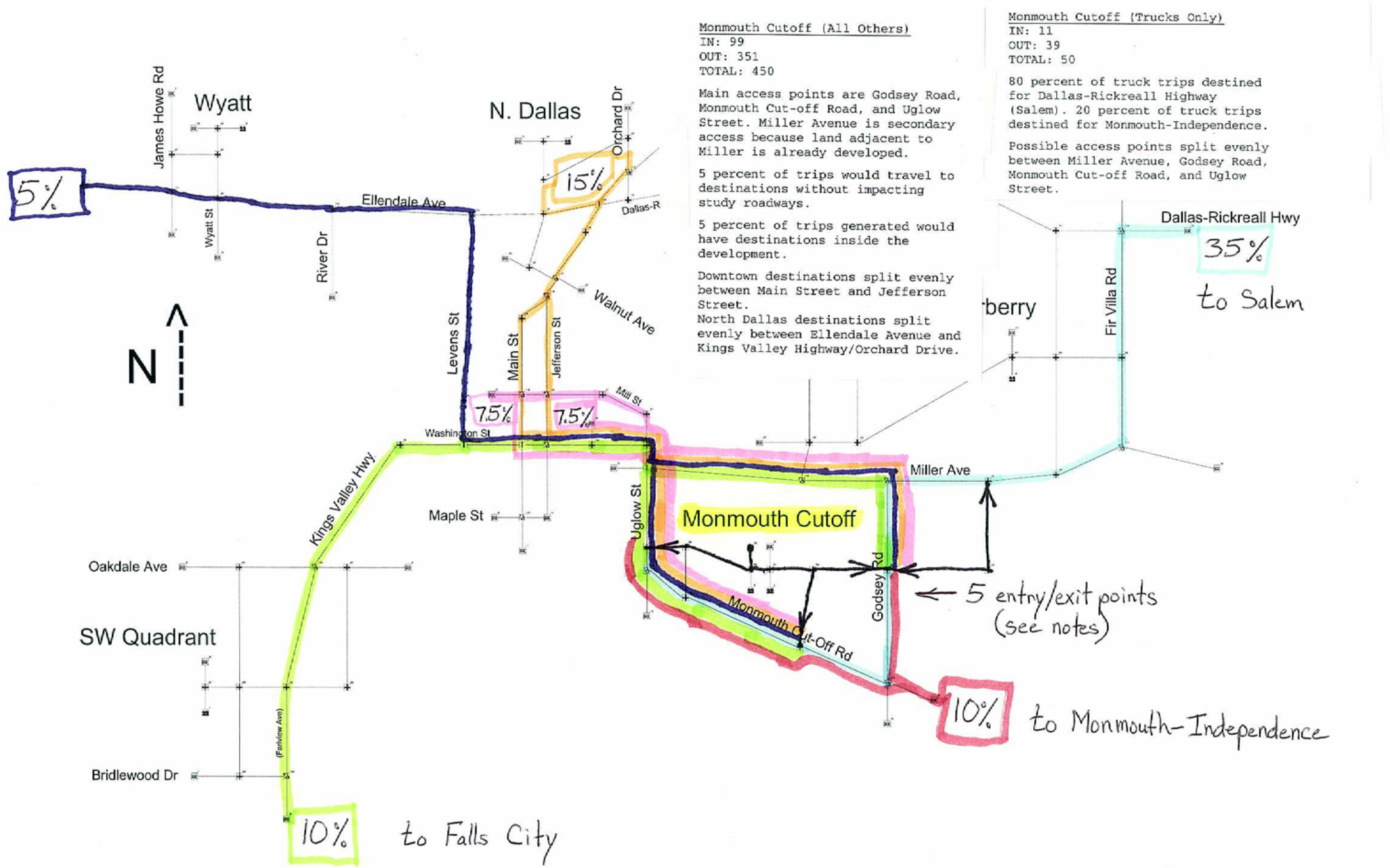
Future Conditions (2025) Trip Generation and Distribution Assumptions


5%
Wyatt
James Howe Rd
Wyatt St
River Dr
Ellendale Ave
N. Dallas
20%
Orchard Dr
Kings Valley Hwy
5%
Polk Station Rd
LaCreole
Dallas-Rickreall Hwy
Oak Villa Rd
Dallas-Rickreall Hwy
20%
to Salem
(see notes)
4 entry/exit points
Barberry
Hawthorne Ave
LaCreole Dr
Fir Villa Rd
Walnut Ave
N
Levens St
Main St
Jefferson St
Mill St
7.5%
7.5%
Washington St
Miller Ave
Maple St
Kings Valley Hwy
Oakdale Ave
SW Quadrant
Bridlewood Dr
10%
to Falls City
Godsey Rd
10%
to Monmouth-Independence
Barberry
IN: 818
OUT: 716
TOTAL: 1534
Possible access points are Fir Villa Road, Miller Avenue, Miller Avenue/LaCreole Drive intersection, and Dallas-Rickreall Highway/Hawthorne Avenue intersection.
5 percent of trips would travel to destinations without impacting study roadways.
10 percent of trips generated would have destinations inside the development.
Downtown destinations split evenly between Main Street and Jefferson Street.
North Dallas destinations split evenly between Ellendale Avenue and Kings Valley Highway/Orchard Drive.

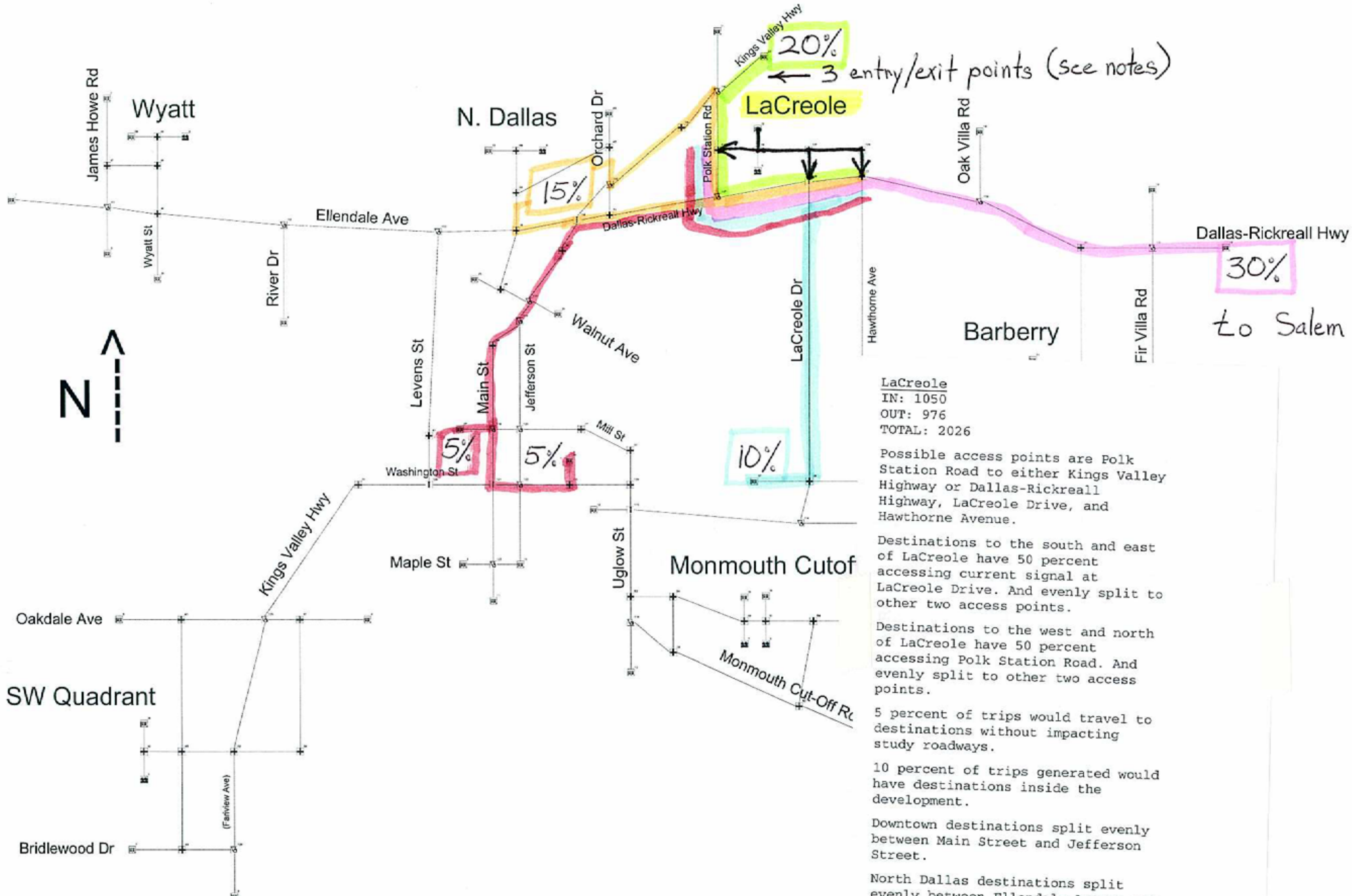

(see notes)
2 entry/exit points
N. Dallas
5%
10%
Kings Valley Hwy
LaCreole
Wyatt
James Howe Rd
Orchard Dr
Polk Station Rd
Oak Villa Rd
10%
Ellendale Ave
Wyatt St
River Dr
Dallas-Rickreall Hwy
Dallas-Rickreall Hwy
25%
to Salem
Fir Villa Rd
Walnut Ave
15%
Levens St
Main St
Jefferson St
Mill St
15%
15%
Washington St
N
North Dallas
IN: 553
OUT: 548
TOTAL: 1101
Possible access points split evenly between Ellendale Avenue and Kings Valley Highway via driveways or Orchard Drive.
5 percent of trips would travel to destinations without impacting study roadways.
Downtown destinations split evenly between Main Street and Jefferson Street.
Uglow St
Monmouth Cutoff
Maple St
Kings Valley Hwy
Oakdale Ave
Godsey Rd
Monmouth Cut-Off Rd
SW Quadrant
(Fairview Ave)
Bridlewood Dr



10%
2 entry/exit points
Wyatt
James Howe Rd
N. Dallas
Orchard Dr
Kings Valley Hwy
LaCreole
Polk Station Rd
Oak Villa Rd
10%
Ellendale Ave
20%
Dallas-Rickreall Hwy
Dallas-Rickreall Hwy
15%
to Salem
Wyatt St
10%
River Dr
Walnut Ave
Fir Villa Rd
N
Levens St
Main St
Jefferson St
Mill St
10%
10%
Washington St
Kings Valley Hwy
Maple St
Uglow St
Oakdale Ave
Monmouth Cut-Off Rd
Godsey
SW Quadrant
(Fairview Ave)
Bridlewood Dr
Wyatt
IN: 349
OUT: 256
TOTAL: 605
Access to Ellendale Avenue is possible from James Howe Road and Wyatt Street.
5 percent of trips would travel to destinations without impacting study roadways.
10 percent of trips generated would have destinations inside the development.
Downtown destinations split evenly between Main Street and Jefferson Street.
North Dallas destinations split evenly between Ellendale Avenue and Kings Valley Highway/Orchard Drive.



Monmouth Cutoff (All Others)
IN: 99
OUT: 351
TOTAL: 450
Main access points are Godsey Road, Monmouth Cut-off Road, and Uglow Street. Miller Avenue is secondary access because land adjacent to Miller is already developed.
5 percent of trips would travel to destinations without impacting study roadways.
5 percent of trips generated would have destinations inside the development.
Downtown destinations split evenly between Main Street and Jefferson Street.
North Dallas destinations split evenly between Ellendale Avenue and Kings Valley Highway/Orchard Drive.
Monmouth Cutoff (Trucks Only)
IN: 11
OUT: 39
TOTAL: 50
80 percent of truck trips destined for Dallas-Rickreall Highway (Salem). 20 percent of truck trips destined for Monmouth-Independence.
Possible access points split evenly between Miller Avenue, Godsey Road, Monmouth Cut-off Road, and Uglow Street.
James Howe Rd
Wyatt
N. Dallas
Orchard Dr
5%
15%
Ellendale Ave
Dallas-R
Wyatt St
River Dr
Walnut Ave
berry
Dallas-Rickreall Hwy
35%
to Salem
Fir Villa Rd
N
Levens St
Main St
Jefferson St
Mill St
7.5%
7.5%
Washington St
Kings Valley Hwy
Miller Ave
Maple St
Uglow St
Monmouth Cutoff
Oakdale Ave
Godsey Rd
← 5 entry/exit points (see notes)
Monmouth Cut-Off Rd
SW Quadrant
10%
to Monmouth-Independence
(Fairview Ave)
Bridlewood Dr
10%
to Falls City



LaCreole
IN: 1050
OUT: 976
TOTAL: 2026

Possible access points are Polk Station Road to either Kings Valley Highway or Dallas-Rickreall Highway, LaCreole Drive, and Hawthorne Avenue.

Destinations to the south and east of LaCreole have 50 percent accessing current signal at LaCreole Drive. And evenly split to other two access points.

Destinations to the west and north of LaCreole have 50 percent accessing Polk Station Road. And evenly split to other two access points.

5 percent of trips would travel to destinations without impacting study roadways.

10 percent of trips generated would have destinations inside the development.

Downtown destinations split evenly between Main Street and Jefferson Street.

North Dallas destinations split evenly between Ellendale Avenue and Kings Valley Highway/Orchard Drive.

APPENDIX E

Future Conditions (2025) Operational Analysis and Queue Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	12	12	12	12	12	12	12	14	12	12	12
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00		0.97	1.00		1.00	1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.95		1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00		1.00	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1613	1622		3424	1684		1693	1782	1616	1660	1657	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.95	1.00	0.95	1.00	
Satd. Flow (perm)	1613	1622		3252	1684		1693	1693	1616	1660	1657	
Volume (vph)	164	584	251	528	686	300	211	421	483	373	426	185
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	173	615	264	556	722	316	222	443	508	393	448	195
RTOR Reduction (vph)	0	13	0	0	13	0	0	0	355	0	13	0
Lane Group Flow (vph)	173	866	0	556	1025	0	222	443	153	393	630	0
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	1%	1%	1%	3%	3%	3%
Turn Type	Prot			Prot			Prot		Over	Prot		
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases												
Actuated Green, G (s)	9.0	43.0		12.0	46.0		10.0	24.5	12.0	19.5	34.5	
Effective Green, g (s)	10.0	44.0		13.0	47.0		11.0	26.0	13.0	21.0	36.0	
Actuated g/C Ratio	0.08	0.37		0.11	0.39		0.09	0.22	0.11	0.18	0.30	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.5	5.0	5.5	5.5	
Vehicle Extension (s)	4.0	4.0		4.0	0.2		4.0	5.5	4.0	5.5	5.5	
Lane Grp Cap (vph)	134	595		371	660		155	386	175	291	497	
v/s Ratio Prot	0.11	0.53		c0.16	c0.61		0.13	0.25	0.09	c0.24	c0.38	
v/s Ratio Perm												
v/c Ratio	1.29	1.46		1.50	1.55		1.43	1.15	0.87	1.35	1.27	
Uniform Delay, d1	55.0	38.0		53.5	36.5		54.5	47.0	52.7	49.5	42.0	
Progression Factor	1.00	0.99		0.89	1.30		0.95	1.01	1.80	1.00	1.00	
Incremental Delay, d2	175.4	214.4		225.7	249.3		221.0	87.9	30.0	178.8	135.4	
Delay (s)	230.2	251.9		273.1	296.9		272.9	135.3	124.8	228.3	177.4	
Level of Service	F	F		F	F		F	F	F	F	F	
Approach Delay (s)		248.4			288.6			156.8			196.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	228.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	128.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	16	12	12	16	12	12	12	15	12	16	12
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.98		1.00	0.98			1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.98	
Satd. Flow (prot)	1613	1882		1660	1941			1685	1634		1881	
Flt Permitted	0.06	1.00		0.06	1.00			0.54	1.00		0.46	
Satd. Flow (perm)	101	1882		104	1941			948	1634		878	
Volume (vph)	140	1232	180	133	1288	167	212	78	126	156	68	131
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	147	1297	189	140	1356	176	223	82	133	164	72	138
RTOR Reduction (vph)	0	4	0	0	4	0	0	0	85	0	18	0
Lane Group Flow (vph)	147	1482	0	140	1528	0	0	305	48	0	357	0
Confl. Peds. (#/hr)			2			1	1					1
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	3%	3%	3%	0%	0%	0%
Turn Type	pm+pt			pm+pt			Perm		Perm	Perm		
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	70.5	65.5		70.5	65.5			36.0	36.0		36.0	
Effective Green, g (s)	72.0	67.0		72.0	67.0			36.0	36.0		36.0	
Actuated g/C Ratio	0.60	0.56		0.60	0.56			0.30	0.30		0.30	
Clearance Time (s)	4.0	5.5		4.0	5.5			4.0	4.0		4.0	
Vehicle Extension (s)	2.0	3.5		2.0	4.0			2.5	2.5		2.5	
Lane Grp Cap (vph)	124	1051		127	1084			284	490		263	
v/s Ratio Prot	c0.05	c0.79		0.05	0.79							
v/s Ratio Perm	0.66			0.61				0.32	0.03		c0.41	
v/c Ratio	1.19	1.41		1.10	1.41			1.07	0.10		1.36	
Uniform Delay, d1	59.7	26.5		59.7	26.5			42.0	30.3		42.0	
Progression Factor	1.37	0.48		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	91.1	184.9		110.0	189.9			74.4	0.1		182.8	
Delay (s)	173.0	197.6		169.7	216.4			116.4	30.3		224.8	
Level of Service	F	F		F	F			F	C		F	
Approach Delay (s)		195.4			212.5			90.3			224.8	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	193.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	128.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	10	14	12	12	12	14	13	15	12	13	16	12
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	0.98		1.00	1.00	
Flt Protected	0.95	1.00			0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1551	1794			1653	1522	1699	1865		1767	2035	
Flt Permitted	0.71	1.00			0.73	1.00	0.55	1.00		0.21	1.00	
Satd. Flow (perm)	1152	1794			1260	1522	977	1865		396	2035	
Volume (vph)	15	10	5	70	5	577	5	447	60	494	337	5
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	11	5	74	5	607	5	471	63	520	355	5
RTOR Reduction (vph)	0	4	0	0	0	494	0	4	0	0	0	0
Lane Group Flow (vph)	16	12	0	0	79	113	5	530	0	520	360	0
Confl. Peds. (#/hr)	6					6			1			3
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	4%	4%	0%	0%	0%
Turn Type	Perm			Perm		Perm	pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	11.9	11.9			11.9	11.9	29.6	29.2		53.3	48.9	
Effective Green, g (s)	11.9	11.9			11.9	11.9	30.6	30.2		54.3	49.9	
Actuated g/C Ratio	0.16	0.16			0.16	0.16	0.41	0.41		0.73	0.67	
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	5.0		4.0	5.0	
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.2	3.0		2.2	3.0	
Lane Grp Cap (vph)	185	288			202	244	407	759		661	1369	
v/s Ratio Prot		0.01					0.00	0.28		c0.21	0.18	
v/s Ratio Perm	0.01				0.06	c0.07	0.01			c0.36		
v/c Ratio	0.09	0.04			0.39	0.46	0.01	0.70		0.79	0.26	
Uniform Delay, d1	26.5	26.3			27.9	28.3	12.9	18.2		12.2	4.8	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0			0.9	1.0	0.0	2.8		5.8	0.1	
Delay (s)	26.7	26.4			28.8	29.3	12.9	21.1		18.0	4.9	
Level of Service	C	C			C	C	B	C		B	A	
Approach Delay (s)		26.5			29.2			21.0			12.7	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	16	12	12	16	12	12	16	12	11	16	12
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			0.98		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.92			0.89		1.00	0.99		1.00	1.00	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1843			1757		1676	1985		1621	1992	
Flt Permitted		0.78			0.96		0.19	1.00		0.20	1.00	
Satd. Flow (perm)		1450			1692		339	1985		349	1992	
Volume (vph)	10	5	25	15	5	103	40	1002	35	117	1048	20
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	11	5	26	16	5	108	42	1055	37	123	1103	21
RTOR Reduction (vph)	0	24	0	0	98	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	18	0	0	31	0	42	1091	0	123	1124	0
Confl. Peds. (#/hr)	2					2	12		15	15		12
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.5			10.5		99.5	99.5		99.5	99.5	
Effective Green, g (s)		11.5			11.5		100.5	100.5		100.5	100.5	
Actuated g/C Ratio		0.10			0.10		0.84	0.84		0.84	0.84	
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		139			162		284	1662		292	1668	
v/s Ratio Prot								0.55			c0.56	
v/s Ratio Perm		0.01			c0.02		0.12			0.35		
v/c Ratio		0.13			0.19		0.15	0.66		0.42	0.67	
Uniform Delay, d1		49.7			50.0		1.8	3.5		2.4	3.6	
Progression Factor		1.00			1.00		0.81	0.77		1.21	1.36	
Incremental Delay, d2		0.4			0.6		1.1	2.0		0.4	0.2	
Delay (s)		50.1			50.6		2.6	4.7		3.4	5.1	
Level of Service		D			D		A	A		A	A	
Approach Delay (s)		50.1			50.6			4.6			5.0	
Approach LOS		D			D			A			A	

Intersection Summary			
HCM Average Control Delay	7.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	12	12	12	14	13	12	12	12	15	16	16	12
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Frpb, ped/bikes		1.00	0.96	1.00	1.00		1.00		0.95	1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	
Frt		1.00	0.85	1.00	1.00		1.00		0.85	1.00	0.88	
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (prot)		1748	1246	1721	1535		1676		1365	1646	1437	
Flt Permitted		1.00	1.00	0.18	1.00		0.95		1.00	0.95	1.00	
Satd. Flow (perm)		1748	1246	332	1535		1676		1365	1646	1437	
Volume (vph)	0	625	30	25	549	0	45	0	90	442	85	406
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	658	32	26	578	0	47	0	95	465	89	427
RTOR Reduction (vph)	0	0	14	0	0	0	0	0	83	0	145	0
Lane Group Flow (vph)	0	658	18	26	578	0	47	0	12	465	371	0
Confl. Peds. (#/hr)			8	8					13			4
Heavy Vehicles (%)	3%	3%	3%	6%	6%	6%	2%	2%	2%	3%	3%	3%
Parking (#/hr)			5		5	5			5	5	10	5
Turn Type			Perm	Perm			Prot		custom	Split		
Protected Phases		2			6		8			4	4	
Permitted Phases			2	6					8			
Actuated Green, G (s)		57.4	57.4	57.4	57.4		14.8		14.8	35.8	35.8	
Effective Green, g (s)		57.4	57.4	57.4	57.4		14.8		14.8	35.8	35.8	
Actuated g/C Ratio		0.48	0.48	0.48	0.48		0.12		0.12	0.30	0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0		4.0		4.0	4.0	4.0	
Vehicle Extension (s)		2.5	2.5	2.5	2.5		2.5		2.5	2.5	2.5	
Lane Grp Cap (vph)		836	596	159	734		207		168	491	429	
v/s Ratio Prot		0.38			c0.38		c0.03			c0.28	0.26	
v/s Ratio Perm			0.01	0.08					0.01			
v/c Ratio		0.79	0.03	0.16	0.79		0.23		0.07	0.95	0.87	
Uniform Delay, d1		26.2	16.6	17.7	26.2		47.4		46.5	41.2	39.8	
Progression Factor		0.87	0.61	1.00	1.00		1.00		1.00	0.80	0.68	
Incremental Delay, d2		6.7	0.1	0.4	5.4		0.4		0.1	25.1	14.6	
Delay (s)		29.4	10.2	18.1	31.6		47.8		46.6	57.9	41.8	
Level of Service		C	B	B	C		D		D	E	D	
Approach Delay (s)		28.5			31.0			47.0			49.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	38.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width	11	16	12	14	16	12	12	16	12	12	14	16
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	0.99			0.99			1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			0.98	1.00
Frt	1.00	1.00		1.00	0.96			0.97			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.96	1.00
Satd. Flow (prot)	1574	1939		1788	1895			1789			1742	1625
Flt Permitted	0.95	1.00		0.95	1.00			0.97			0.76	1.00
Satd. Flow (perm)	1574	1939		1788	1895			1744			1381	1625
Volume (vph)	135	481	5	20	731	250	5	30	10	164	35	238
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	142	506	5	21	769	263	5	32	11	173	37	251
RTOR Reduction (vph)	0	0	0	0	10	0	0	9	0	0	0	208
Lane Group Flow (vph)	142	511	0	21	1022	0	0	39	0	0	210	43
Confl. Peds. (#/hr)			12			15	2		14	14		2
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	9%	9%	9%	4%	4%	4%
Turn Type	Prot			Prot			Perm			Perm		Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)	12.9	85.5		2.0	74.6			20.5			20.5	20.5
Effective Green, g (s)	12.9	85.5		2.0	74.6			20.5			20.5	20.5
Actuated g/C Ratio	0.11	0.71		0.02	0.62			0.17			0.17	0.17
Clearance Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	4.0
Vehicle Extension (s)	2.5	4.6		2.5	4.6			2.5			2.5	2.5
Lane Grp Cap (vph)	169	1382		30	1178			298			236	278
v/s Ratio Prot	c0.09	0.26		0.01	c0.54							
v/s Ratio Perm								0.02			c0.15	0.03
v/c Ratio	0.84	0.37		0.70	0.87			0.13			0.89	0.15
Uniform Delay, d1	52.5	6.7		58.7	18.6			42.2			48.6	42.4
Progression Factor	1.00	1.00		0.92	0.72			1.00			1.00	1.00
Incremental Delay, d2	29.2	0.8		32.4	5.3			0.1			30.6	0.2
Delay (s)	81.7	7.5		86.2	18.7			42.3			79.3	42.6
Level of Service	F	A		F	B			D			E	D
Approach Delay (s)		23.6			20.0			42.3			59.3	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	55	491	30	10	464	158	10	5	10	127	5	41
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	58	517	32	11	488	166	11	5	11	134	5	43
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	655			548			1287	1324	533	1254	1257	572
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	655			548			1287	1324	533	1254	1257	572
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			99			91	96	98	1	97	92
cM capacity (veh/h)	937			1011			121	146	551	135	160	524

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	606	665	26	182
Volume Left	58	11	11	134
Volume Right	32	166	11	43
cSH	937	1011	185	165
Volume to Capacity	0.06	0.01	0.14	1.10
Queue Length 95th (ft)	5	1	12	235
Control Delay (s)	1.6	0.3	27.7	156.6
Lane LOS	A	A	D	F
Approach Delay (s)	1.6	0.3	27.7	156.6
Approach LOS			D	F

Intersection Summary			
Average Delay	20.5		
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	653	5	110	687	5	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	687	5	116	723	5	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			693		1645	690
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			693		1645	690
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		95	81
cM capacity (veh/h)			893		96	449

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	693	839	89
Volume Left	0	116	5
Volume Right	5	0	84
cSH	1700	893	369
Volume to Capacity	0.41	0.13	0.24
Queue Length 95th (ft)	0	11	23
Control Delay (s)	0.0	3.2	17.8
Lane LOS		A	C
Approach Delay (s)	0.0	3.2	17.8
Approach LOS			C

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Free	
Grade	0%			0%	0%	
Volume (veh/h)	511	223	215	502	295	120
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	538	235	226	528	311	126
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		7				
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	747	0	890	621	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	747	0	890	621	0	
tC, single (s)	6.5	6.2	7.1	6.5	4.1	
tC, 2 stage (s)						
tF (s)	4.0	3.3	3.5	4.0	2.2	
p0 queue free %	0	78	0	0	81	
cM capacity (veh/h)	275	1082	0	328	1630	

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total	773	226	528	311	126
Volume Left	0	226	0	311	0
Volume Right	235	0	0	0	126
cSH	360	0	328	1630	1700
Volume to Capacity	2.15	Err	1.61	0.19	0.07
Queue Length 95th (ft)	1418	Err	785	18	0
Control Delay (s)	549.7	Err	318.3	7.7	0.0
Lane LOS	F	F	F	A	
Approach Delay (s)	549.7	Err		5.5	
Approach LOS	F	F			

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	587	283	15	5	370	125	15	19	5	133	24	599
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	618	298	16	5	389	132	16	20	5	140	25	631
Pedestrians					3							
Lane Width (ft)					16.0							
Walking Speed (ft/s)					4.0							
Percent Blockage					0							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		407										
pX, platoon unblocked												
vC, conflicting volume	521			314			2651	2073	309	2018	2015	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	521			314			2651	2073	309	2018	2015	455
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	41			100			0	9	99	0	0	0
cM capacity (veh/h)	1040			1235			0	22	733	5	24	605

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	618	314	526	41	140	656
Volume Left	618	0	5	16	140	0
Volume Right	0	16	132	5	0	631
cSH	1040	1700	1235	0	5	311
Volume to Capacity	0.59	0.18	0.00	Err	25.46	2.11
Queue Length 95th (ft)	102	0	0	Err	Err	1205
Control Delay (s)	13.4	0.0	0.1	Err	Err	536.9
Lane LOS	B		A	F	F	F
Approach Delay (s)	8.9		0.1	Err	2201.6	
Approach LOS				F	F	

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	113.6%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	30	341	51	231	257	20	43	5	206	30	10	30
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	32	359	54	243	271	21	45	5	217	32	11	32
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	292			413			1253	1227	386	1436	1243	281
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292			413			1253	1227	386	1436	1243	281
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			78			59	96	67	47	92	96
cM capacity (veh/h)	1259			1130			111	138	666	59	133	755

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	444	535	267	74
Volume Left	32	243	45	32
Volume Right	54	21	217	32
cSH	1259	1130	347	113
Volume to Capacity	0.03	0.22	0.77	0.65
Queue Length 95th (ft)	2	20	155	84
Control Delay (s)	0.8	5.4	43.0	83.0
Lane LOS	A	A	E	F
Approach Delay (s)	0.8	5.4	43.0	83.0
Approach LOS			E	F

Intersection Summary			
Average Delay	15.8		
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	98	1274	1372	259	279	98
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	103	1341	1444	273	294	103
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1717				3128	1581
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1717				3128	1581
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	72				0	23
cM capacity (veh/h)	369				9	134

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	103	1341	1717	397
Volume Left	103	0	0	294
Volume Right	0	0	273	103
cSH	369	1700	1700	12
Volume to Capacity	0.28	0.79	1.01	33.64
Queue Length 95th (ft)	28	0	0	Err
Control Delay (s)	18.5	0.0	0.0	Err
Lane LOS	C			F
Approach Delay (s)	1.3		0.0	Err
Approach LOS				F

Intersection Summary			
Average Delay	1115.8		
Intersection Capacity Utilization	122.1%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	10	1328	1447	5	5	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	1398	1523	5	5	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1528				2945	1526
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1528				2945	1526
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				68	93
cM capacity (veh/h)	433				16	146

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	1408	1528	16
Volume Left	11	0	5
Volume Right	0	5	11
cSH	433	1700	40
Volume to Capacity	0.02	0.90	0.40
Queue Length 95th (ft)	2	0	34
Control Delay (s)	1.9	0.0	145.4
Lane LOS	A		F
Approach Delay (s)	1.9	0.0	145.4
Approach LOS			F

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	105	1104	164	159	1124	40	153	5	255	25	5	135
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	111	1162	173	167	1183	42	161	5	268	26	5	142
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)									8			
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1225			1335			3132	3029	1248	3059	3095	1204
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1225			1335			3132	3029	1248	3059	3095	1204
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	81			67			0	26	0	0	17	37
cM capacity (veh/h)	569			510			1	7	213	0	6	224

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	111	1335	167	1225	435	174
Volume Left	111	0	167	0	161	26
Volume Right	0	173	0	42	268	142
cSH	569	1700	510	1700	1	0
Volume to Capacity	0.19	0.79	0.33	0.72	300.21	Err
Queue Length 95th (ft)	18	0	35	0	Err	Err
Control Delay (s)	12.8	0.0	15.5	0.0	Err	Err
Lane LOS	B		C		F	F
Approach Delay (s)	1.0		1.9		Err	Err
Approach LOS					F	F

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	114.2%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	393	80	130	25	35	286
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	414	84	137	26	37	301
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	163				1062	150
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	163				1062	150
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	71				79	66
cM capacity (veh/h)	1422				176	896

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	498	163	338
Volume Left	414	0	37
Volume Right	0	26	301
cSH	1422	1700	619
Volume to Capacity	0.29	0.10	0.55
Queue Length 95th (ft)	30	0	82
Control Delay (s)	7.6	0.0	17.6
Lane LOS	A		C
Approach Delay (s)	7.6	0.0	17.6
Approach LOS			C

Intersection Summary			
Average Delay	9.7		
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	263	125	112	319	202	199
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	277	132	118	336	213	209
Pedestrians					4	
Lane Width (ft)					13.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					0	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			412		918	347
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			412		918	347
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		20	70
cM capacity (veh/h)			1142		267	689

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	408	454	422
Volume Left	0	118	213
Volume Right	132	0	209
cSH	1700	1142	384
Volume to Capacity	0.24	0.10	1.10
Queue Length 95th (ft)	0	9	380
Control Delay (s)	0.0	3.0	108.6
Lane LOS		A	F
Approach Delay (s)	0.0	3.0	108.6
Approach LOS			F

Intersection Summary			
Average Delay	36.7		
Intersection Capacity Utilization	81.7%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	102	286	5	5	299	182	5	5	5	142	5	77
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	107	301	5	5	315	192	5	5	5	149	5	81
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	506			306			1023	1035	304	947	942	411
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	506			306			1023	1035	304	947	942	411
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	90			100			97	97	99	28	98	87
cM capacity (veh/h)	1053			1249			170	209	741	208	227	622

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	414	512	16	236
Volume Left	107	5	5	149
Volume Right	5	192	5	81
cSH	1053	1249	249	270
Volume to Capacity	0.10	0.00	0.06	0.87
Queue Length 95th (ft)	8	0	5	187
Control Delay (s)	3.1	0.1	20.4	67.5
Lane LOS	A	A	C	F
Approach Delay (s)	3.1	0.1	20.4	67.5
Approach LOS			C	F

Intersection Summary			
Average Delay	14.9		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	309	250	5	10	338	173	5	10	5	133	20	295
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	325	263	5	11	356	182	5	11	5	140	21	311
Pedestrians								4			5	
Lane Width (ft)								16.0			12.5	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	543			272			1618	1484	270	1397	1396	452
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	543			272			1618	1484	270	1397	1396	452
tC, single (s)	4.1			4.1			7.2	6.6	6.3	7.2	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	68			99			78	87	99	0	77	48
cM capacity (veh/h)	1011			1291			24	82	756	78	93	599

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	325	268	11	538	21	140	332
Volume Left	325	0	11	0	5	140	0
Volume Right	0	5	0	182	5	0	311
cSH	1011	1700	1291	1700	59	78	445
Volume to Capacity	0.32	0.16	0.01	0.32	0.35	1.81	0.75
Queue Length 95th (ft)	35	0	1	0	32	303	153
Control Delay (s)	10.2	0.0	7.8	0.0	95.7	498.4	33.2
Lane LOS	B		A		F	F	D
Approach Delay (s)	5.6		0.1		95.7	171.3	
Approach LOS					F	F	

Intersection Summary			
Average Delay	52.7		
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	386	50	25	330	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	406	53	26	347	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	805	53			79	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	805	53			79	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	94	59			77	
cM capacity (veh/h)	261	993			1482	

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1
Volume Total	16	406	53	26	405
Volume Left	16	0	0	0	347
Volume Right	0	406	0	26	0
cSH	261	993	1700	1700	1482
Volume to Capacity	0.06	0.41	0.03	0.02	0.23
Queue Length 95th (ft)	5	51	0	0	23
Control Delay (s)	19.7	11.1	0.0	0.0	7.3
Lane LOS	C	B			A
Approach Delay (s)	11.4		0.0		7.3
Approach LOS	B				

Intersection Summary			
Average Delay	8.6		
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	SBT	SBR	NEL	NER
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	1077	0	1088	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1134	0	1145	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			241			
pX, platoon unblocked						
vC, conflicting volume	1145				1134	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1145				1134	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	610				224	1085

Direction, Lane #	NB 1	NB 2	SB 1
Volume Total	0	1134	1145
Volume Left	0	0	0
Volume Right	0	0	1145
cSH	1700	1700	1700
Volume to Capacity	0.00	0.67	0.67
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			
Approach Delay (s)	0.0		0.0
Approach LOS			

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	250	132	35	133	0	0	0	0	77	768	303
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	263	139	37	140	0	0	0	0	81	808	319
Pedestrians								13				
Lane Width (ft)								0.0				
Walking Speed (ft/s)								4.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)								810				
pX, platoon unblocked												
vC, conflicting volume	1200	1130	577	850	1289	0	1127			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1200	1130	577	850	1289	0	1127			0		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	0	70	0	11	100	100			95		
cM capacity (veh/h)	32	195	465	0	157	1091	627			1629		

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	402	177	485	723
Volume Left	0	37	81	0
Volume Right	139	0	0	319
cSH	244	0	1629	1700
Volume to Capacity	1.65	Err	0.05	0.43
Queue Length 95th (ft)	641	Err	4	0
Control Delay (s)	344.5	Err	1.6	0.0
Lane LOS	F	F	A	
Approach Delay (s)	344.5	Err	0.7	
Approach LOS	F	F		

Intersection Summary			
Average Delay	Err		
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	262	66	0	0	61	191	107	579	15	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	276	69	0	0	64	201	113	609	16	0	0	0
Pedestrians		2									1	
Lane Width (ft)		16.0									0.0	
Walking Speed (ft/s)		4.0									4.0	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	766	853	2	877	845	314	2			625		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	766	853	2	877	845	314	2			625		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	0	75	100	100	77	71	93			100		
cM capacity (veh/h)	162	277	1085	185	277	682	1608			966		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2
Volume Total	345	265	417	321
Volume Left	276	0	113	0
Volume Right	0	201	0	16
cSH	177	504	1608	1700
Volume to Capacity	1.96	0.53	0.07	0.19
Queue Length 95th (ft)	651	76	6	0
Control Delay (s)	493.5	19.8	2.5	0.0
Lane LOS	F	C	A	
Approach Delay (s)	493.5	19.8	1.4	
Approach LOS	F	C		

Intersection Summary			
Average Delay	131.0		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	348	788	10	5	569	323	5	30	5	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	366	829	11	5	599	340	5	32	5	0	0	0
Pedestrians		15			5			7			11	
Lane Width (ft)		14.5			16.0			15.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)		387										
pX, platoon unblocked				0.73			0.73	0.73	0.73	0.73	0.73	
vC, conflicting volume	950			847			2369	2535	847	2379	2370	795
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	950			790			2879	3107	790	2892	2881	795
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	49			99			0	0	98	0	100	100
cM capacity (veh/h)	715			591			4	4	283	0	6	385

Direction, Lane #	EB 1	EB 2	WB 1	NB 1
Volume Total	366	840	944	42
Volume Left	366	0	5	5
Volume Right	0	11	340	5
cSH	715	1700	591	5
Volume to Capacity	0.51	0.49	0.01	8.90
Queue Length 95th (ft)	74	0	1	Err
Control Delay (s)	15.2	0.0	0.3	Err
Lane LOS	C		A	F
Approach Delay (s)	4.6		0.3	Err
Approach LOS				F

Intersection Summary			
Average Delay	194.7		
Intersection Capacity Utilization	112.4%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	5	5	50	5	40	5	85	35	60	70	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	5	5	53	5	42	5	89	37	63	74	11
Pedestrians		2									1	
Lane Width (ft)		12.0									16.0	
Walking Speed (ft/s)		4.0									4.0	
Percent Blockage		0									0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)											1129	
pX, platoon unblocked												
vC, conflicting volume	371	344	81	332	331	109	86			126		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	371	344	81	332	331	109	86			126		
tC, single (s)	7.2	6.6	6.3	7.2	6.6	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.6	4.1	3.4	2.3			2.2		
p0 queue free %	98	99	99	91	99	95	100			96		
cM capacity (veh/h)	521	540	958	575	546	920	1441			1448		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	100	132	147
Volume Left	11	53	5	63
Volume Right	5	42	37	11
cSH	594	680	1441	1448
Volume to Capacity	0.04	0.15	0.00	0.04
Queue Length 95th (ft)	3	13	0	3
Control Delay (s)	11.3	11.2	0.3	3.5
Lane LOS	B	B	A	A
Approach Delay (s)	11.3	11.2	0.3	3.5
Approach LOS	B	B		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	48	5	8	13	5	13	11	380	21	29	536	74
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	51	5	8	14	5	14	12	400	22	31	564	78
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1115	1109	603	1109	1137	411	642			422		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1115	1109	603	1109	1137	411	642			422		
tC, single (s)	7.1	6.5	6.2	7.2	6.6	6.3	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.6	4.1	3.4	2.2			2.2		
p0 queue free %	71	97	98	92	97	98	99			97		
cM capacity (veh/h)	172	201	499	171	190	630	942			1137		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	64	33	434	673
Volume Left	51	14	12	31
Volume Right	8	14	22	78
cSH	191	252	942	1137
Volume to Capacity	0.34	0.13	0.01	0.03
Queue Length 95th (ft)	35	11	1	2
Control Delay (s)	33.1	21.4	0.4	0.7
Lane LOS	D	C	A	A
Approach Delay (s)	33.1	21.4	0.4	0.7
Approach LOS	D	C		

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	53	13	11	356	454	94
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	56	14	12	375	478	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	925	527	577			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	925	527	577			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	98	99			
cM capacity (veh/h)	295	551	997			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	69	386	577
Volume Left	56	12	0
Volume Right	14	0	99
cSH	325	997	1700
Volume to Capacity	0.21	0.01	0.34
Queue Length 95th (ft)	20	1	0
Control Delay (s)	19.1	0.4	0.0
Lane LOS	C	A	
Approach Delay (s)	19.1	0.4	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Queuing Analysis

TABLE 22
2025 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
Washington Street & Levens Street				
	Eastbound	Left	150	180
		Thru/Right		330
	Westbound	Left	130	60
		Thru/Right	300	570
	Northbound	Left/Thru/Right		70
	Southbound	Thru/Left		220
		Right	220	210
Dallas-Rickreall Hwy & Kings Valley Hwy				
	Eastbound	Left	200	280
		Thru/Right		890
	Westbound	Left	335	370
		Left	335	420
		Thru/Right		2400
	Northbound	Left	215	310
		Thru		390
		Right	300	370
	Southbound	Left	100	280
		Thru/Right		390
Dallas-Rickreall Hwy & LaCreole Drive				
	Eastbound	Left	160	130
		Thru/Right		830
	Westbound	Left	150	150
		Thru/Right		580
	Northbound	Left/Thru	130	160
		Right		4630
	Southbound	Left/Thru/Right		290
Washington Street & Main Street				
	Eastbound	Thru	450	540
		Right		160
	Westbound	Left	90	60
		Thru	290	420
	Northbound	Left	90	70
		Right		90
	Southbound	Left	310	480
		Thru/Right	310	330
Miller Avenue & Uglow Street				
	Eastbound	Left		30
		Thru/Right		30
	Westbound	Left/Thru	120	100
		Right	830	140
	Northbound	Left	80	10

TABLE 22
2025 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
		Thru/Right	450	510
	Southbound	Left	120	420
		Thru/Right	220	160
Kings Valley Hwy & Walnut Avenue				
	Eastbound	Left/Thru/Right		50
	Westbound	Left/Thru/Right		80
	Northbound	Left	75	20
		Thru/Right		330
	Southbound	Left	100	10
		Thru/Right		120
Kings Valley Hwy & Bridlewood Drive				
	Eastbound	Left/Right		20
	Northbound	Left/Thru		10
	Southbound	Thru/Right		
Kings Valley Hwy & Oakdale Avenue				
	Eastbound	Left/Thru/Right		40
	Westbound	Left/Thru/Right		20
	Northbound	Left/Thru/Right		10
	Southbound	Left/Thru/Right		10
Kings Valley Hwy & Orchard Drive				
	Eastbound	Left	100	110
		Thru/Right		
	Westbound	Left/Thru/Right		0
	Northbound	Left/Thru/Right		40
	Southbound	Left	110	120
		Thru/Right	480	500
Kings Valley Hwy & Polk Station Road				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		20
	Northbound	Left/Thru/Right		220
	Southbound	Left/Thru/Right		60
Dallas-Rickreall Hwy & Fir Villa Road				
	Eastbound	Left	110	20
		Thru/Right		
	Westbound	Left	120	40
		Thru/Right		
	Northbound	Left/Thru		140
		Right	200	220
	Southbound	Left/Thru/Right		140
Dallas-Rickreall Hwy & Oak Villa Road				
	Eastbound	Left/Thru		10
	Westbound	Thru/Right		
	Southbound	Left/Right		40
Dallas-Rickreall Hwy & Polk Station Road				

TABLE 22
2025 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
	Eastbound	Left	100	30
		Thru		
	Westbound	Thru/Right		
	Southbound	Left/Right		320
Monmouth Cutoff Road & Uglow Street				
	Westbound	Right		60
	Northbound	Thru		
	Southbound	Left/Thru		30
Monmouth Cutoff Road & Godsey Road				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		0
	Northbound	Left/Thru/Right		10
	Southbound	Left/Thru/Right		190
W Ellendale Ave & James Howe Road				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		10
	Northbound	Left/Thru/Right		20
	Southbound	Left/Thru/Right		150
W Ellendale Ave & River Drive				
	Eastbound	Thru/Right		
	Westbound	Left/Thru		20
	Northbound	Left/Right		30
W Ellendale Ave & Levens Drive				
	Eastbound	Thru	380	430
		Right	170	190
	Westbound	Left	110	180
		Thru		420
	Northbound	Left		20
		Right		
Washington Street & Jefferson Street				
	Eastbound	Left	90	80
		Thru/Right		
	Westbound	Left/Thru/Right		10
	Northbound	Left/Thru/Right		40
Mill Street & Main Street				
	Eastbound	Thru/Right		320
	Westbound	Left/Thru		140
	Southbound	Left/Thru		10
		Thru/Right		
Mill Street & Jefferson Street				
	Eastbound	Left/Thru		280
	Westbound	Thru/Right		
	Northbound	Left/Thru		10
		Thru/Right		

TABLE 22
2025 30th Highest Hour Queue Analysis

Intersection	Approach	Lane Group	Existing Storage (feet)	Queue Length (feet)
Main Street & Maple Street				
	Eastbound	Left/Thru/Right		10
	Westbound	Left/Thru/Right		20
	Northbound	Left/Thru/Right		0
	Southbound	Left/Thru/Right		10
Miller Avenue & LaCreole Drive				
	Eastbound	Left	110	40
		Thru/Right		
	Westbound	Left	130	10
		Thru/Right		
	Northbound	Left/Thru/Right		40
	Southbound	Left	160	120
		Thru/Right		270
Miller Avenue & Godsey Road				
	Eastbound	Thru/Right		
	Westbound	Left/Thru		10
	Northbound	Left/Right		380
Miller Avenue & Fir Villa Road				
	Eastbound	Left/Thru		30
	Westbound	Thru/Right		
	Southbound	Left/Right		90

Note:
Queue lengths not reported for free-flowing and uncontrolled movements.
Queue lengths rounded up to the nearest ten feet.
Existing storage for through-lanes displayed only when queue is expected to surpass the distance to the next intersection.

APPENDIX F

MUTCD Signal Warrant Analysis

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Kings Valley Highway	**Minor Street:**	Orchard Drive
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)					
X	100 percent of standard warrants				
	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	16290	Y
	Minor	2	3550	5790	
Case B	Major	1	13300	16290	Y
	Minor	2	1750	5790	
Analyst and Date:			Reviewer and Date:		

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Through-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
599	311	264	335

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Dallas-Rickreall Highway	**Minor Street:**	Fir Villa Road
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)					
X	100 percent of standard warrants				
	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	32490	Y
	Minor	1	2650	4850	
Case B	Major	1	13300	32490	Y
	Minor	1	1350	4850	
Analyst and Date:			Reviewer and Date:		

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Right Only Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
255	1	1	254

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Dallas-Rickreall Highway	**Minor Street:**	Oak Villa Road
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)					
	100 percent of standard warrants				
X	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6200	33580	N
	Minor	1	1850	60	
Case B	Major	1	9300	33580	N
	Minor	1	950	60	
Analyst and Date:			Reviewer and Date:		

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Left-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Dallas-Rickreall Highway	**Minor Street:**	Polk Station Road
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

	100 percent of standard warrants
X	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	6200	36090	Y
	Minor	1	1850	4330	
Case B	Major	1	9300	36090	Y
	Minor	1	950	4330	

Analyst and Date:	Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Left-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
98	10	9	90

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Monmouth Cutoff	**Minor Street:**	Godsey Road
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

	100 percent of standard warrants
X	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	2	7400	11390	N
	Minor	1	1850	1730	
Case B	Major	2	11100	11390	Y
	Minor	1	950	1730	

Analyst and Date:	Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Left-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Ellendale Avenue	**Minor Street:**	James Howe Road
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)					
X	100 percent of standard warrants				
	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	14220	N
	Minor	1	2650	1550	
Case B	Major	1	13300	14220	Y
	Minor	1	1350	1550	
Analyst and Date:			Reviewer and Date:		

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Left-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Ellendale Avenue	**Minor Street:**	Levens Street
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)					
X	100 percent of standard warrants				
	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	17080	N
	Minor	2	3550	3470	
Case B	Major	1	13300	17080	Y
	Minor	2	1750	3470	
Analyst and Date:			Reviewer and Date:		

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Right Only Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Washington Street	**Minor Street:**	Jefferson Street
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

X	100 percent of standard warrants
	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	25940	N
	Minor	1	2650	460	
Case B	Major	1	13300	25940	N
	Minor	1	1350	460	

Analyst and Date:	Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Left-Through-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
5	1	1	4

Oregon Department of Transportation

Transportation Development Branch

Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Mill Street	**Minor Street:**	Main Street
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

X	100 percent of standard warrants
	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	2	10600	13980	Y
	Minor	1	2650	2940	
Case B	Major	2	15900	13980	N
	Minor	1	1350	2940	

Analyst and Date:	Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Through-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Mill Street	**Minor Street:**	Jefferson Street
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250

5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)

X	100 percent of standard warrants
	70 percent of standard warrants[2]

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	2	10600	8680	N
	Minor	1	2650	3860	
Case B	Major	2	15900	8680	N
	Minor	1	1350	3860	

Analyst and Date:	Reviewer and Date:

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Through-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Miller Avenue	**Minor Street:**	LaCreole Drive
Project:	Dallas TSP	**City/County:**	Dallas
Year:	2025	**Alternative:**	2025 No Build

Preliminary Signal Warrant Volumes

Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)					
X	100 percent of standard warrants				
	70 percent of standard warrants[2]				

Preliminary Signal Warrant Calculation

	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	12770	N
	Minor	2	3550	1800	
Case B	Major	1	13300	12770	N
	Minor	2	1750	1800	
Analyst and Date:			Reviewer and Date:		

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Through-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

Oregon Department of Transportation
Transportation Development Branch
Transportation Planning Analysis Unit

Preliminary Traffic Signal Warrant Analysis[1]

Major Street:	Miller Avenue		**Minor Street:**	Godsey Road	
Project:	Dallas TSP		**City/County:**	Dallas	
Year:	2025		**Alternative:**	2025 No Build	
Preliminary Signal Warrant Volumes					
Number of Approach lanes		ADT on major street approaching from both directions		ADT on minor street, highest approaching volume	
Major Street	Minor Street	Percent of standard warrants 100	70	Percent of standard warrants 100	70
Case A: Minimum Vehicular Traffic					
1	1	8850	6200	2650	1850
2 or more	1	10600	7400	2650	1850
2 or more	2 or more	10600	7400	3550	2500
1	2 or more	8850	6200	3550	2500
Case B: Interruption of Continuous Traffic					
1	1	13300	9300	1350	950
2 or more	1	15900	11100	1350	950
2 or more	2 or more	15900	11100	1750	1250
1	2 or more	13300	9300	1750	1250
5.65% of the above ADT volumes is equal to the MUTCD vehicles per hour (vph)					
X	100 percent of standard warrants				
	70 percent of standard warrants[2]				
Preliminary Signal Warrant Calculation					
	Street	Number of Lanes	Warrant Volumes	Approach Volumes	Warrant Met
Case A	Major	1	8850	9630	N
	Minor	1	2650	2380	
Case B	Major	1	13300	9630	N
	Minor	1	1350	2380	
Analyst and Date:			Reviewer and Date:		

[1] Meeting preliminary signal warrants does **not** guarantee that a signal will be installed. Before a signal can be installed a traffic signal investigations must be conducted or reviewed by the Region Traffic Manager. Traffic signal warrants must be met and the State Traffic Engineer's approval obtained before a traffic signal can be installed on a state highway.

[2] Used due to 85th percentile speed in excess of 40 mph or isolated community with population of less than 10,000.00

Right Turn Discount-Shared Left-Right Lane

Total Right Turns	Lane Capacity	Discount	Rt Turns to Include
			none

APPENDIX G

Complete List of Preliminary Cost Estimates

Appendix G: Complete List of Preliminary Cost Estimates

Table G-1 provides planning-level cost estimates for each of the recommended improvement projects, including a complete listing of each recommended improvement, the category of improvement (R = roadway, B = bicycle, and P = pedestrian), and the jurisdiction likely to lead the improvement effort.

The table is organized by phase, as listed below:

- Short-term (next ten years)
- Medium-term (10-15 years)
- Long-term (15-20 years)

TABLE G-1
Proposed Transportation Improvements

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
	Next Ten Years		
R	Add northbound left turn lane and eastbound and westbound through lanes, also change the northbound left to lagging protected/permitted at Dallas-Rickreall Highway and LaCreole Drive	$470,000	City/State
R	Signalize and add eastbound and westbound through lanes to Dallas-Rickreall Highway and Fir Villa Road	$470,000	City/State
R	Add eastbound and westbound through lanes to Dallas-Rickreall Highway and Oak Villa Road	$230,000	City/State
R	Add eastbound and westbound through lanes to Dallas-Rickreall Highway and Polk Station Road	$230,000	City/State
R	Add southbound left turn lane to W Ellendale Avenue and James Howe Road	$120,000	City
R	Signalize and add westbound left turn lane to W Ellendale Avenue and Levens Street	$350,000	City
R	Signalize and add eastbound left turn lane to Washington Street and Jefferson Street	$350,000	City/State
R	Signalize Mill Street and Main Street	$240,000	City/State
R	Signalize Mill Street and Jefferson Street	$240,000	City/State
R	Change stop control to a four-way stop at Miller Avenue and Fir Villa Road	$1,000	City
B/P/R	Extend Hawthorne Avenue south to Barberry Avenue	$510,000	City
B/P/R	Extend Hankel Street east to Fir Villa Road	$1,720,000	City

TABLE G-1
Proposed Transportation Improvements

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
B/P/R	Extend Academy Street east to city limits	$2,760,000	City
B/P/R	Extend Barberry Avenue east to Fir Villa Road	$2,030,000	City
R	Signalize Dallas-Rickreall Highway and Barberry Avenue	$240,000	City/State
B/P/R	Extend Hawthorne Avenue north to connect with new east-west circulation road	$460,000	City
B/P/R	Extend LaCreole Drive north to Kings Valley Highway	$960,000	City
B/P/R	Extend Wyatt Street north to city limits	$1,600,000	City
B/P/R	Extend Jasper Street north to city limits	$1,670,000	City
B/P/R	Extend River Drive north to city limits	$1,770,000	City
B/P/R	Create east-west connector road from James Howe Road to Denton Avenue and Fairhaven Lane	$1,190,000	City
P	Construct new sidewalk on south side of Ellendale Avenue from Wyatt to River Drive	$430,000	City
P	Construct new sidewalk on south side of Kings Valley Highway from North Dallas Intersection to Wal-Mart	$170,000	City/State
P	Construct new sidewalk on Miller Road from just east of LaCreole to just west of Fir Villa	$960,000	City
P	Construct new sidewalk on Godsey Road from Monmouth Cut-Off to Miller Avenue	$690,000	City
P	Construct new sidewalk on Maple Street from Lyle Street to Uglow Avenue	$130,000	City
P	Widen and improve sidewalk condition and upgrade curb ramps on Levens Street from W Ellendale Avenue to Rickreall Creek	$350,000	City
P	Improve sidewalk condition, upgrade curb ramps and fill in missing segments of sidewalk on Mill Street between Jefferson Street and Uglow Avenue	$400,000	City
P	Fill in sidewalk segment and upgrade curb ramps on Fairview Avenue between Clay Street and Maple Street	$190,000	City
B	Construct bicycle lanes on W Ellendale Avenue from western city limits to North Dallas Intersection	$270,000	City
B	Construct bicycle lanes on Levens Street from W Ellendale Avenue to Academy Street	$16,000	City
B	Stripe bicycle lanes on both sides of Kings Valley Highway from W Ellendale Avenue to Orchard Drive and on north side from Orchard Drive to city limits	$8,100	City
B	Construct bicycle lanes on LaCreole Drive from W Ellendale Avenue to Miller Avenue	$39,000	City
B	Stripe bicycle lanes on Miller Avenue from LaCreole Drive to Fir Villa Road	$170,000	City

TABLE G-1
Proposed Transportation Improvements

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
B	Construct bicycle lanes on Main Street from W Ellendale Avenue to north end of couplet	$13,000	City
B	Add bicycle route signs on Mill Street from Washington Street to River Drive	$4,700	City
B	Stripe bicycle lanes on Main Street from north end of couplet to Washington Street	$8,100	City
B	Construct bicycle lanes on Jefferson Street from north end of couplet to Washington Street	$18,000	City
B	Add bicycle route signs on Walnut Avenue from Levens Street to LaCreole Drive	$3,000	City
B	Add bicycle route signs on Main Street from Washington Street to Ash Street	$400	City
B	Add bicycle route signs on Jefferson Street from Washington Street to Ash Street	$400	City
B	Add bicycle route signs on Hayter Street from Maple Street to Oakdale Avenue	$600	City
B	Add bicycle route signs on Oakdale Avenue from Hayter Street to Fairview Avenue	$1,000	City
B	Add bicycle route signs on Maple Street from Fairview Avenue to terminus of Maple Street	$1,200	City
Total		$21,484,500	
	Ten to Fifteen Years		
B/P/R	Extend Fir Villa Road south to Monmouth Cut-Off	$3,030,000	City
B/P/R	Extend River Drive south across Rickreall Creek, connecting to Mill street	$1,080,000	City
B/P/R	Build new east-west circulation road connecting Polk Station Road and Hawthorne Avenue	$1,340,000	City
B/P/R	Widen Dallas Rickreall Highway to include two through lanes in each direction between the North Dallas Intersection and LaCreole Drive	$1,300,000	City/State
P	Construct new sidewalk on the south side of King’s Valley Highway from Wal-Mart to Polk Station Road and on the north side from 100’ east of Dallas Drive to Polk Station Road	$250,000	City
P	Construct new sidewalk on the north side of W Ellendale Avenue from Wyatt Street to city limits	$130,000	City
P	Widen sidewalk and add landscaping buffer on W Ellendale Avenue between LaCreole Drive and Levens Street.	$1,540,000	City
P	Fill in sidewalk segment on east side of LaCreole Drive between Walnut Avenue and Barberry Avenue	$18,000	City
B	Add bicycle route signs on River Drive from W Ellendale Avenue to Mill Street	$1,200	City
B	Stripe bicycle lanes on Orchard Drive from Kings Valley Highway to city limits	$8,600	City

TABLE G-1
Proposed Transportation Improvements

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
B	Stripe bicycle lanes on Polk Station Road from Kings Valley Highway to Dallas Rickreall Highway	$4,700	City
B	Add bicycle route signs on Hawthorne Avenue from Dallas Rickreall Highway to Barberry Avenue	$1,200	City
B	Stripe bicycle lanes on Hankel Street from Hawthorne to Main Street	$46,000	City
Total		$8,749,700	
	Fifteen to Twenty Years		
R	Add eastbound right, westbound right, southbound right turn lanes and eastbound and westbound through lanes to North Dallas Intersection	$710,000	City/State
R	Signalize and add eastbound left turn lane to Kings Valley Highway and Orchard Drive	$350,000	City/State
B/P/R	Extend Webb Lane to Kings Valley Highway	$4,990,000	County
B/P/R	New connector west from Fairview Avenue to serve southwest quadrant city	$4,640,000	City
B/P/R	Extend Wyatt Street north from city limits to Webb Lane	$500,000	County
B/P/R	Extend Jasper Street north from city limits to Webb Lane	$500,000	County
B/P/R	Add new connector from Fairview Avenue east to provide access to Mill to/from the south	$1,850,000	City
B/P/R	Add new connector from behind Weyerhaeuser Mill east to Uglow Avenue	$2,480,000	City
B/P/R	Extend Fern Avenue east to Kings Valley Highway	$410,000	City
P	Construct new sidewalks on Fairview Avenue from Oakdale Road to Bridlewood Drive	$690,000	City
P	Construct new sidewalks on Monmouth Cut-Off from Maple Street to Godsey Road	$1,020,000	City
P	Construct new sidewalks on Fir Villa Road from Dallas-Rickreall to existing sidewalk	$550,000	City
P	Construct new sidewalk on Dallas-Rickreall Highway from LaCreole Drive to Fir Villa Road	$1,140,000	City/State
P	Construct sidewalk on River Drive from Rickreall Creek bridge to W Ellendale Avenue	$440,000	City/State
B	Construct bicycle lanes on Dallas Rickreall Highway from LaCreole to eastern city limits	$43,000	City/State
B	Construct bicycle lanes on Fir Villa Road from Dallas Rickreall Highway to Miller Avenue	$74,000	City
B	Construct bicycle lanes on Monmouth Cut-Off Road/Uglow Avenue from Mill Street to city limits	$38,000	City
B	Construct bicycle lanes on Godsey Road from Miller Avenue to Monmouth Cut-Off	$25,000	City

TABLE G-1
Proposed Transportation Improvements

Category	Project Title	Estimated Capital Cost	Owning Jurisdiction
B	Construct bicycle lanes on Washington Street and Fairview Avenue from Jefferson Street to city limits	$66,000	City/State
Total		$20,516,000	
Grand Total		**$50,750,200**	

*Category abbreviations are as follows:

- -- B=bicycle
- -- P=pedestrian
- -- R=roadway

* Improvements to County facilities outside of City of Dallas urban growth boundary (UGB).