TRANSPORTATION SYSTEM PLAN

CITY OF NORTH PLAINS

Prepared by

Entranco, Inc.
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Adopted: November 15, 2004 - Ordinance No. 325
Amended: June 20, 2005 - Ordinance No 335

ORDINANCE NO. 325

CITY OF NORTH PLAINS, OREGON

AN ORDINANCE ADOPTING THE TRANSPORTATION SYSTEMS PLAN AND INCORPORATING IT INTO THE COMPREHENSIVE PLAN FOR THE CITY OF NORTH PLAINS, OREGON.

WHEREAS, the City prepared a Transportation Systems Plan (TSP) for the City of North Plains and submitted the TSP to the State Department of Land Conservation and Development for approval; and

WHEREAS, the Department of Land Conservation and Development reviewed the TSP and on December 23, 2003 remanded certain portions of the TSP back to the city for changes; and

WHEREAS, the city has made the necessary changes to the TSP as requested by the Department of Land Conservation and Development. Now therefore,

THE CITY OF NORTH PLAINS ORDAINS AS FOLLOWS:

Section 1. The City of North Plains hereby adopts the Transportation Systems Plan attached hereto as Exhibit "A".

Section 3. This ordinance shall be effective 30 days from the date of its passage.

INTRODUCED on the 1st day of November **AND ADOPTED** this 15th day of November, 2004.

CITY OF NORTH PLAINS, OREGON

By: Cheri Olson
Cheri Olson, Mayor

ATTEST:

By: Debbie Owens
Debbie Owens, City Recorder

Oregon
Theodore R. Kulongoski, Governor

Department of Land Conservation and Development
635 Capitol Street NE, Suite 150
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First Floor/Coastal Fax: (503) 378-6033
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March 17, 2005

Honorable Cheri Olson, Mayor
City of North Plains
31360 NW Commercial Avenue
P. O. Box 150
North Plains, OR 97301-2540

RE: Partial Approval of Periodic Review Task 6, Subtask 2 (Order 001658) Transportation Systems Plan

Dear Mayor Olson:

On January 29, 2002, the city submitted periodic review Task 6, Subtask 2 (Transportation System Plan) to the Department of Land Conservation and Development (DLCD). On December 23, 2003 the Department remanded portions of the task for the city to correct deficiencies in Transportation System Plan (TSP) documents drafted in 2001, reflecting outdated city circumstances of that time (Order 001594). The order included an attachment listing 15 specific items to be revised.

On November 17, 2004, the DLCD received the City of North Plains' submittal of TSP amendments in response to the remand and as a product of a DLCD Periodic Review grant. The task addresses the requirements for Statewide Planning Goal 12. Further, on January 29 and February 11, 2005 the department received supplemental information from the city's transportation consultant in electronic form.

Therefore, the department has now conducted a review of the new task submittal pursuant to Oregon Administrative Rule (OAR) 660-025-0140(6) and prepared the attached report. The submittal is approved.

We conclude, however, that the submittal does not complete Task 6, Subtask 2 because it does not address the city's planned land uses and transportation system in the acknowledged UGB expansion area. The city needs to complete transportation planning for the expansion area in compliance with OAR Chapter 660, Division 12 (the Transportation Planning Rule) and submit the completed task by December 30, 2005.

The city may appeal this order to the Land Conservation and Development Commission. Appeals must be in writing and received by the department's Salem office by April 6, 2005. Appeals to the commission are governed by OAR-660-025-0150(3).

If you have any questions please feel free to contact your periodic review team leader and regional representative, Meg Fernekees, at (503) 731-4065 extension 34.

Yours truly,

Rob Hallyburton
Community Services Division Manager

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Enclosure: Task 6.2 Report

cc: Donald Otterman, City Manager
Brent Curtis, Washington County Planning Manager
Larry French, DLCD Periodic Review Specialist
Meg Fernekees, DLCD Regional Representative (email)
Steve Oulman, DLCD Transportation Planner
State Periodic Review Assistance Team (email)

ORDINANCE NO. 335

CITY OF NORTH PLAINS, OREGON

AN ORDINANCE AMENDING ORDINANCE NO. 325 ADOPTING THE TRANSPORTATION SYSTEMS PLAN AND INCORPORATING IT INTO THE COMPREHENSIVE PLAN FOR THE CITY OF NORTH PLAINS, OREGON AND DECLARING AN EMERGENCY.

WHEREAS, the City prepared a Transportation Systems Plan (TSP) for the City of North Plains and submitted the TSP to the State Department of Land Conservation and Development for approval; and

WHEREAS, the Department of Land Conservation and Development reviewed the TSP and on December 23, 2003, remanded certain portions of the TSP back to the city for changes; and

WHEREAS, the city amended the TSP as requested by the Department of Land Conservation and Development and approved the amendments by Ordinance No. 325; and

WHEREAS, the Department of Land Conservation and Development has requested that additional changes be made to the Transportation Systems Plan regarding connectivity of the proposed streets in the North and East Expansion Areas with the remainder of the transportation system. Now therefore,

THE CITY OF NORTH PLAINS ORDAINS AS FOLLOWS:

Section 1. The City of North Plains hereby adopts the North Plains- North and East Expansion Area Street Connectivity Project by Priority Chart attached hereto as Exhibit "A" as a part of the Transportation Systems Plan.

Section 2. The City of North Plains hereby adopts the City of North Plains Transportation system Plan Proposed Classification System map attached hereto as Exhibit "B".

Section 3. The City of North Plains hereby adopts the Statement of Street Connectivity for Expansion Areas in North Plains Comprehensive Plan and Transportation systems Plan.

Section 4. Emergency. In order to fully protect the health, safety and welfare of North Plains for its citizens, an emergency is hereby declared and this Ordinance shall take effect immediately following its adoption.

INTRODUCED AND ADOPTED this 20th day of June, 2005.

CITY OF NORTH PLAINS, OREGON

By: _____
Cheri Olson, Mayor

ATTEST:

By: _____
Debbie Owens, City Recorder

RESOLUTION NO. 1285

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF NORTH PLAINS ADOPTING A TRANSPORTATION SYSTEM DEVELOPMENT CHARGE.

WHEREAS, the City Council has the authority under the terms of the North Plains Municipal Code Chapter 2.15 and ORS 223.297 to 223.314 (1999) to establish System Development Charges (SDC's) for Transportation; and

WHEREAS, the City Council has adopted the *Transportation System Plan* (Entranco, Inc., June 2001, amended 2004 and 2005) as part of Ordinance No. 335 (July 5, 2005); and

WHEREAS, the City Council contracted with Economic and Financial Analysis (EFA) to develop a transportation SDC methodology that is consistent with ORS 223.297 to 223.314, and EFA produced the report *Transportation System Development Charge* (EFA, preliminary April, 2005, and final August 2, 2005) to support the creation of a lawful SDC for transportation; and

WHEREAS, the City Council notified the development community on April 27, 2005, and May 24, 2005, of a public hearing that was held on August 1, 2005; and

WHEREAS, the City Council wishes to adopt a Transportation system development charge based upon the *Transportation System Plan,* dated June, 2001, and adopted July 5, 2005, and on the preliminary *Transportation System Development Charge* methodology dated April, 2005, and on public testimony taken on August 1, 2005,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH PLAINS, OREGON AS FOLLOWS:

Section 1: The System Development Charges Methodology, Report, *Transportation System Development Charge* August 1, 2005, is hereby adopted.

Section 2: There is hereby established a Transportation SDC in the following amount to be collected at the time of the issuance of a building permit consistent with the terms of the North Plains Municipal Code Chapter 2.15 for:

$483 per PM Peak-Hour Trip as defined by the Institute of Transportation Engineers (ITE) in its manual *Trip Generation* [6th ed. Vol. 1-3, 1997].

Section 3: The application of the Transportation SDC shall be guided by the *Trip Generation* [6th ed. Vol. 1-3, 1997] manual published by Institute of Transportation Engineers.

Section 4: This resolution shall take effect on August 1, 2005.

ADOPTED this 1st day of August, 2005.

CITY OF NORTH PLAINS, OREGON

By: Herbert L. Hirst
for Cheri Olson, Mayor

ATTEST:

By: Debbie Owens
Debbie Owens, City Recorder

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CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN
CHAPTER 1.00

1.00.00 INTRODUCTION

The City of North Plains has committed to developing a well planned, comprehensive transportation system that balances the needs of future land development with a system that serves all users. In the development of the Transportation System Plan (TSP), the City must also address Oregon's Transportation Planning Rule (TPR), which requires public jurisdictions such as North Plains to develop:

- A road plan for a network of arterial and collector streets
- Bicycle and pedestrian plans
- Air, rail, water and pipeline plans
- A transportation financing plan, and
- Policies and land use regulations for implementing the transportation system plan

In addition, the TPR requires local jurisdictions to adopt land use subdivision ordinance amendments to protect transportation facilities, and to establish requirements for bicycle facilities between residential, commercial, and employment/institutional areas. The TPR also requires that local communities coordinate their plans with county and state transportation plans. Beyond the external requirements of the Transportation Planning Rule and related statewide and federal policies, local conditions also point to the need for a system wide of the transportation facilities and services including:

1.01.00 CITY OF NORTH PLAINS COMPREHENSIVE PLAN - TRANSPORTATION ELEMENT GOALS AND POLICIES

In the Transportation Element of its Comprehensive Plan, the City of North Plains identifies goals and policies designed to promote the integrated development if pedestrian, bicycle and motor vehicle facilities with public transit and commercial freight and passenger transportation systems. The TSP will incorporate these goals and policies.

1.02.00 TRANSPORTATION SYSTEM PLAN DOCUMENT STRUCTURE

The TSP is intended to summarize the results of the public involvement process, the analysis of existing policies and conditions, the impact of future growth on the transportation system and the identification of alternatives that can address local transportation system needs in North Plains.

A review of the TSP project schedule, Management Team and Technical Advisory Committee meeting dates, and date of open houses is given in **Chapter 2**.

Chapter 3 of this report outlines the development of the North Plains TSP beginning with a review of relevant city, county, and state plans and policies. This chapter also lists the requirements of the Transportation Planning Rule (OAR 660 Division 12) and identifies how the City, through the Transportation System Plan, will address those requirements. **Chapter 4** describes the current conditions inventory, which was conducted to develop an understanding of the physical, operational, safety and travel characteristics and environmental constraints of the existing transportation system in the City of North Plains.

Based on information summarized in preceding sections, **Chapter 5** discusses the development of a new set of design standards that will guide the direction of new facility construction(pedestrian, bicycle and auto) in the City of North Plains. **Chapter 6** identifies the changes to the existing transportation facilities that need to occur in the City of North Plains in order to accommodate for the transportation needs in the future.

The identification of available financial resources to pay for future transportation system improvements is summarized in **Chapter 7**. The TSP document concludes with a series of technical appendices that supplement supporting information to the analysis and findings included in Chapters 1-7.

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN
CHAPTER 2.00

2.00.00 TRANSPORTATION SYSTEM PLAN TECHNICAL REVIEW AND PUBLIC PARTICIPATION PROCESS

This section describes the TSP project and meeting schedules of the Management Team and the Technical Advisory Committee. It also lists and summarizes the open houses held.

2.01.00 PROJECT SCHEDULE

The general project schedule, as shown in this Chapter, began in August 2000 and concluded in June 2003.

2.02.00 MEETINGS

The TSP project held Management Team (MT) and Transportation Advisory Committee (TAC) meetings and public open houses at major milestones of the project and in accordance to the following schedule:

MT and TAC Meeting Schedule:
August 10, 2000 - Project kick off meting (MT and TAC)
October 26, 2000 - MT and TAC
November 9, 2000 - TAC
March 8, 2001 - MT and TAC
May 10, 2001 - MT and TAC
June 14, 2004 - MT and TAC

Public Meetings:
October 26, 2000
May 5, 2001
June 7, 2001

The MT includes the following members:
Lidwein Rahman - ODOT
Tim Wilson - ODOT
Clark Berry - Washington County
Don Otterman - City of North Plains
Xavier Falconi - Entranco

Following is a list of TAC members.

TRANSPORTATION ADVISORY COMMITTEE ROSTER
May 18,2000

John G. Fernane
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North Plains, Oregon 97133
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Michael Zeman
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North Plains, Oregon 97133
Phone: 292-0380 Work
647-4334 Home

Mary Lou Fults
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North Plains, Oregon 97133
Phone: 647-5560

Wayne Holm
Oregon-Canadian Forest Products
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Office: 647-9340

Herb Hirst
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North Plains, Oregon 97133
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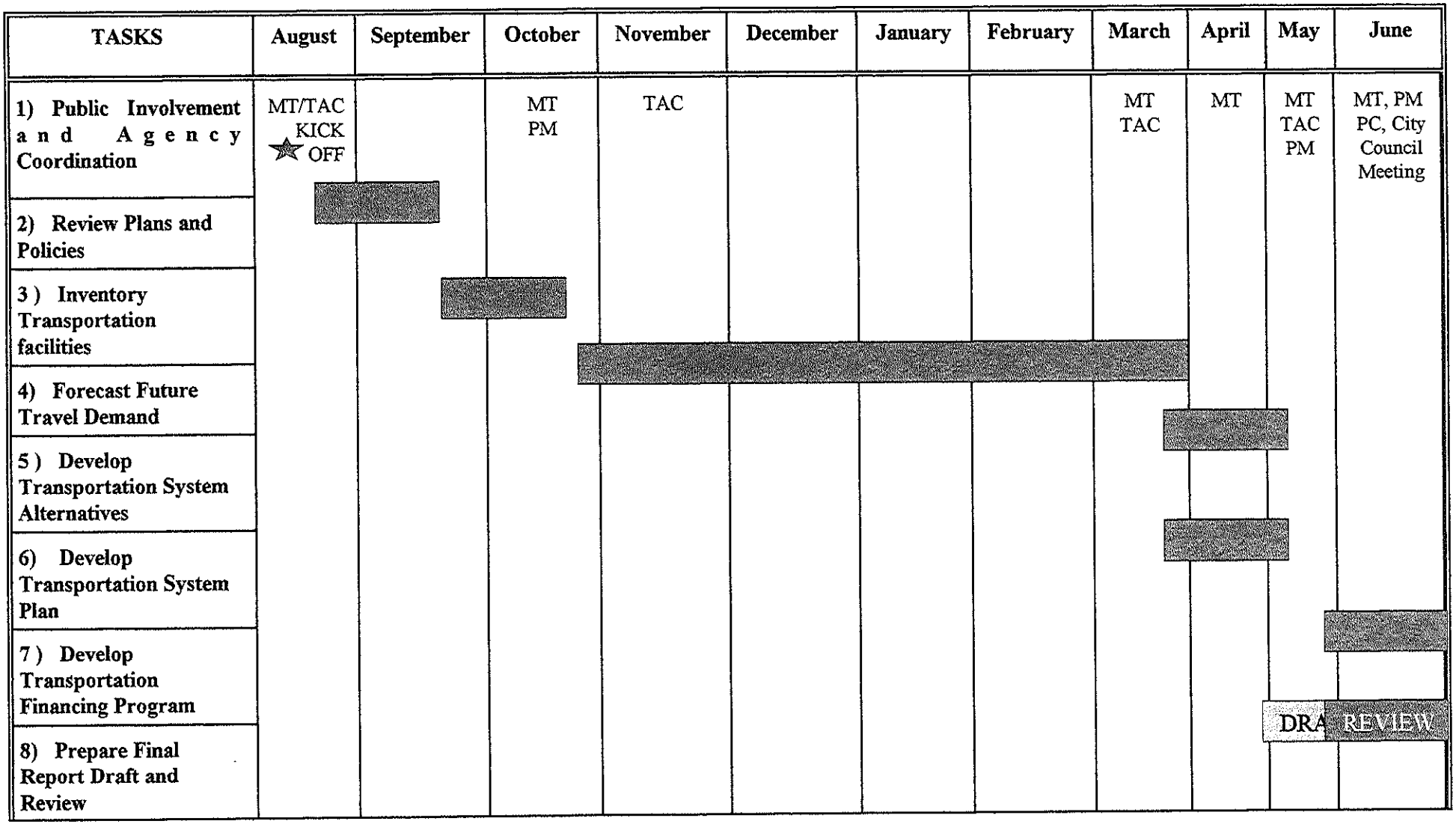
David Hatcher
P. O. Box 955
North Plains, Oregon 97133
Phone: 647-2877
Pager: 604-2538

NORTH PLAINS TRANSPORTATION SYSTEM PLAN
PROJECT SCHEDULE

PC = Planning Commission
PM = Public Meeting
MT = Management Team
TAC = Transportation Advisory Committee



CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN
CHAPTER 3.00

3.00.00 REVIEW OF PLANS AND POLICIES

3.01.00 INTRODUCTION

The City of North Plains is a rural residential community located in western Washington County on the western fringe of the Portland metropolitan area. Platted in 1910, the community was incorporated in 1963. In 1999 North Plains had an estimated population of 1,755 residents.

This report provides a summary after reviewing the following documents:

- North Plains Neighbor City Study (not formally adopted)
- North Plains Comprehensive Plan (adopted on March 20, 2000) and Work Tasks 1, 2, and 3, North Plains Periodic Review (adopted on August 21, 2000)
- Portland-Cannon Beach Junction (US 26) Corridor Plan (adopted by OTC on May 18, 1999)
- Sunset Highway Interchange Study (not formally adopted)
- 1999 Oregon Highway Plan (adopted by OTC on March 18, 1999)
- Washington County Transportation Plan (adopted October 1988)
- City of Hillsboro Transportation System Plan (adopted July 1999)
- 2000 Regional Transportation Plan (adopted by Metro Council on August 10, 2000)
- Transportation Planning Rule (adopted in 1991)

3.02.00 NORTH PLAINS NEIGHBOR CITY STUDY

This project was a joint project between North Plains, Metro, ODOT and DLCD with Washington County participation. The overall purpose of the North Plains Neighbor City Study was to:

- Identify the amount, location, and development patterns as well as the consequences of growth of the City of North Plains.
- Provide tools to address concerns with where and how much growth might be accommodated in North Plains consistent with its vision for the future and its relationship with the Metro region, including Washington County, and in compliance with Statewide Planning goals, statutes and rules.

The following planning principles were used to guide policy and plan development in the North Plains Neighbor City Study:

- Jobs to Housing - There will be a balance between jobs and housing in North Plains. The jobs-to-housing ratio will be selected by North Plains, but coordinated with Metro and Washington County. The type and amount of commercial and industrial lands planned will reflect the jobs-housing balance and local economic strategies.
- Rural Reserves - Permanent areas will be preserved between North Plains and the metropolitan area (and between North Plains and other neighboring cities) to serve as buffers between urban areas and established rural areas or areas of very low-density zoning.
- Green Corridors - The connecting highway between the Metro area and North Plains will be planned as "Green Corridor". The corridor will be planned as high performance, multi-modal transportation facilities, where access is tightly controlled and development pressures are minimized.
- Compact Urban Growth - North Plains will create a land use plan that illustrates a compact urban growth. It will be defined by North Plains but coordinated with Metro, Washington County and the State.
- Urban Design Guidelines - The following urban design guidelines will be followed to help maintain and enhance community identity and livability:
    - Planned residential densities within North Plains Neighboring City Study will be denser than existing residential densities.
    - Mixed-use zoning will be used to encourage pedestrian, bicycle and transit use, linking of trips, and to meet local retail and services needs.
    - The downtown area will be preserved and enhanced as the focal point for the city.
    - Parks and open spaces will be provided throughout the City. Plans will provide for schools and parks to serve each neighborhood.
    - The plan will promote a sense of place that is a development pattern that reflects the community's values and vision of the future.
    - A connected street pattern will be planned in order to foster choices for travel by foot, bike, auto and transit.

In general, the project objectives were:

- To recognize that a planning perspective that is consistent with the North Plains Vision will be the best alternative to confronting the challenges of growth in North Plains.
- To acknowledge that North Plains will be substantially influenced by growth and growth policies within the Metro region, including Washington County, and will need to establish greater control over its own future growth and destiny.
- To identify possible methods of implementing the policies of Metro's 2040 Growth Concept and RUGGOS in neighboring cities.
- To identify methods of addressing the impacts of growth on North Plains, Washington County and Metro.

- To identify land use and transportation methods or tools that can accommodate the projection of growth to the year 2015.
- To determine the amount and location of growth in North Plains that can meet Statewide Goal 14 and other applicable Goals, statues and rules.
- To determine the feasibility of providing the full range of urban services to serve future growth.
- To identify a conceptual land use and transportation plan accommodating the growth in a manner which:
    - Provides for job-housing balance
    - Minimizes commuter traffic between North Plains and Metro
    - UGB provides for compact urban growth
    - Preserves the most valuable farm lands
    - Preserves local identity
    - Retains a rural reserve between North Plains and Metro
    - UGB improves local tax base
- To foster a better relationship and level of coordination between North Plains, Washington County, and Metro.

The study contained a town plan, and an outline of the steps required for implementation. The Policy Advisory Committee (PAC) agreed on the following criteria for evaluating alternative growth scenarios, with an understanding that the objectives are general, and can include several compatible points of view. The agreement was that the preferred growth direction outside the City would be to the north and east, as shown on the Town Plan.

Each alternative plan evaluated provided for approximately the same population and employment, as well as a balance between jobs and housing. The population projections for the study were 3,000 (year 2015), and 7,600 (year 2040). The study assumed that there would be a balance between new housing and jobs at a ratio of 1.2 jobs, on average, per household.

3.02.10 Points of Agreement

3.02.12 Plan for Compact Growth

- Mixed use opportunities may add to the housing capacity inside the City.
- Present zoning should be maintained with amendments to increase residential densities in key areas, encourage mixed-use development, ensure efficient use of the land supply within the City, and promote compatible development within the City's urban growth boundary.
- Increases in residential densities inside the city are appropriate in several key locations to promote housing variety and afford ability. Priority areas to focus on are the town center, Commercial Avenue, Main Street, Glencoe

Road mixed use corridor, western redevelopment opportunity area, and mixed-use nodes and centers of new neighborhoods.

- The need to expand the urban growth boundary may be delayed if proposed redevelopment strategies are successful.
- There was agreement that the City of North Plains, Washington County, and Metro should consider using intergovernmental agreements (IGAs) to establish areas of mutual interest, and coordination procedures for carrying out the study recommendations.

3.02.14 Recognize the Need for Urban Expansion, and Plan Accordingly

- The study concluded that additional acres outside the City may be needed to accommodate new housing, parks, and public/institutional uses during the next 20 years.
- Commercial or industrial land needs are based upon floor-area ratios of 0.4 for commercial lands and 0.3 for industrial lands. Additional land may be needed if sustained development falls short of these ratios.
- Any new development outside the City should be planned in complete neighborhoods, either singularly or in conjunction with adjacent areas.
- The preferred growth direction outside the City is to the north and east, as shown on the Town Plan.
- The preferred growth direction assumes a case can be made for not including "exception" lands (located south of the City) in areas planned for urbanization.

3.02.20 Points of Concern and Issues for Further Study

As shown in the appendix of this document, the Town Plan was unanimously approved by the PAC after public comment, with the following key concerns and refinements noted:

3.02.22 Population Forecast

- The 2040 population forecast should be reviewed for consistency with countywide analysis, and acceptance by the North Plains area community. The study revealed a range of citizens' concerns with the 2040 analysis (7,600 residents). While some PAC members viewed the forecast as being too low, others felt that it might be too high. Representatives of CPO #8 and others expressed that the forecast would make North Plains too large, resulting in unacceptable impacts to agricultural lands. Washington County did support the study's 2015-population projection (3,000 residents), but did not agree to the study's 2040-population projection (7,600 residents). The County was concerned that regional discussions to date do not provide sufficient technical and policy basis to allocate population beyond the year 2017.

3.02.24 Statewide Goal Compliance

- Complete statewide goal findings must be made to amend the City's comprehensive plan. A key concern is the conversion of agricultural lands to urban use.
- The amount of land needed for housing should be reviewed for compliance with new statutes related to housing needs. The study included a preliminary analysis of housing needs.

3.02.25 Highway 26

- A key concern is the need for safety improvements at the intersection of Highway 26 and Jackson School Road.

3.02.26 Pacific Avenue

- The feasibility of extending Pacific Avenue to the east, as envisioned by the Town Plan, should be evaluated for environmental impacts and cost. This is an important connection and part of the rationale for selecting an eastern growth direction. If a street proved to be infeasible, a pedestrian and bicycle connection should be evaluated.

3.02.27 Property Owner Support

- Some property owners on the City's fringe expressed that they do not want to be included in the future urbanization plans.

3.02.28 Town Plan Refinements

- The alternatives analysis described refinements to the Town Plan map recommended by the PAC, after public comment. Key issues to consider include the size and configuration of remnant farmland, and proximity of development to Jackson School Road to the east and Pumpkin Ridge Golf Club to the north.

3.02.30 SUMMARY

The main outcome of this study was that it helped to facilitate discussion and form partnerships among the various stakeholders who will influence the future of North Plains. The study provided the following:

- The 20-year population and employment analysis, buildable lands inventory, and land needs projections provide valuable baseline information for a comprehensive plan update.
- The evaluation of infill development, public facilities, and alternative growth directions will assist the City in considering urban expansion.
- The proposed town plan and implementation steps can be used as a framework for updating the City's 20-year comprehensive plan.

- The baseline information and preliminary rationale will assist in making goal findings to support local adoption of the town plan.

3.03.00 NORTH PLAINS COMPREHENSIVE PLAN

While maintaining its small town character, the citizens and elected officials of North Plains look to continued growth and prosperity. To this end, the City embarked on a comprehensive land use planning process designed to:

- Address the statewide planning goals of the Land Conservation and Development Commission (LCDC).
- Encourage orderly and coordinated urban growth, and provide urban level services in an efficient and economic manner.
- Enhance community livability and encourage economic expansion.
- Preserve the community's character and natural resources for future generations.

The City of North Plains has seen many changes lately and has decided to create the following Vision Statement as a document for:

- Taking a pro-active approach to controlling their own destiny by creating a new community identity with projections to the Year 2040.
- Improving their ability to obtain their fair share of future growth and economic development by expanding their jurisdictional boundaries, where appropriate.
- Enhancing the livability of and encouraging pride in the community by stressing the city's unique character. To include, but not limited to, the agricultural/forest products/railroad legacy, and pioneer heritage of North Plains.
- This vision statement is to provide guidance to the City for interpreting and amending the Comprehensive Plan and Zoning and Development Ordinance. This Vision Statement is intended to provide guidance for approval of individual land use decisions.

In 1983, the City amended its zoning code to significantly increase housing opportunities by:

- Expanding the definitions of "Dwelling Unit" to include prefabricated housing constructed to Uniform Building Code specifications and "manufactured home parks to include manufactured home subdivisions"
- Permitting manufactured home parks or subdivisions in the R5 as well as R2.5 zones
- Adopting a planned unit development (PUD) ordinance that permits greater flexibility in dwelling siting, design and construction

The City is currently served by the Burlington Northern Railroad four to five times a day. The Hillsboro Airport that is operated by the Port of Portland is within 5 miles of the City.

Under section 15.02.105 the transportation system objectives are:

1. To provide a system of road and other forms of transportation which link each part of the community into a unified whole, and one which will safely, efficiently, and economically move traffic to and through the area when it is fully urbanized.
2. Development should occur in such a manner as to encourage and facilitate pedestrian movements.
3. City street improvements should be a priority and a better maintenance program should be developed.
4. Alternative modes of transportation, in addition to the automobile, should be encouraged and prompted.

Under Objective 2, the policies are:

- The City of North Plains shall consider bikeways as a transportation alternative in future roadway planning. Bikeways on major and minor arterials and collector streets will be given highest priority for transportation related paths.
- The City of North Plains shall encourage development of bikeways that connect residential areas to activity areas such as the central Town Square.
- The City of North Plains shall encourage development of subdivision designs that include bike and footpaths that interconnect neighborhoods and lead to schools, parks, and other activity areas.
- The City will ensure access for bicyclists to and from Highway 26.
- The City will provide safe pedestrian access to schools, parks, and shopping to make walking a realistic alternative to driving within the City.

For objective 3, the policies are:

- The City will promote adequate transportation linkages between residential, commercial and industrial use areas. This will be done through street improvements, new streets, marked turning lanes, warning signs and/or speed reduction. Problems identified in the plan are of first priority.
- The City will require developers to aid development of the roadway system by dedication or reservation of needed rights-of-way and by adopting setbacks and other required standards that will keep buildings from interfering with future road improvements.
- The City will require applicants for development in the North Plains urban area to construct streets within and serving the development to City standards including curbs, gutter, sidewalk and drainage facilities.
- New land developments will be encouraged to reduce the percentage of land devoted to streets.
- Local streets in residential neighborhoods shall include trees and landscaping to achieve a pleasant visual effect.

- The City will cooperate with ODOT in the implementation of the Statewide Transportation Improvement Program.

Under objective 4, the policy establishes that the City will support efforts to secure mass transit system.

The Transportation Planning Rule requires the each local government amend its land use regulations to implement the Transportation System Plan (TSP). The specific guidelines for how this is achieved are found in Section 660-12-045 - Implementation of the Transportation System Plan. This requires local jurisdictions to amend their existing Comprehensive Plan, Zoning and Subdivision ordinances with specific language that reflects the Transportation Planning Rule (amended in 1999). For North Plains, this resulted in a series of policy additions to section 15.02.105 of the North Plains Zoning and Development Ordinance. These additions will be reviewed and approved by the City and State as part of the TSP adoption process.

3.04.00 PORTLAND-CANNON BEACH JUNCTION (US 26) CORRIDOR PLAN

A corridor plan is a long-range (20-year) program for managing transportation systems that move people, goods and services within a specific transportation corridor. While many modes of transportation and transportation facilities are not owned or operated by the state (i.e. railroads, transit systems, port facilities), the state has a special interest in their performance given their interaction with ODOT facilities and collective significance to the statewide transportation system.

The purpose of the Corridor Plan is to establish both short and long-term management direction for all modes of transportation in the corridor and to make major transportation tradeoff decisions. Management objectives address the corridor as whole, as well as specific sites and transportation improvements. The Corridor Plan also identifies priorities and timing for the various actions and responsible public agencies and other service providers.

3.04.10 Key elements of the Corridor Plan include:

- Description of existing and future conditions for all modes in the corridor
- Forecasts of future available funding for transportation projects in the corridor
- Summary of existing state, regional and local policy direction and analysis of its compliance or consistency with the Corridor Plan
- Future vision for management of each element of the corridor's transportation system
- Corridor Plan objectives that define the policy direction for all modes in the corridor, as well as for several functional issues such as connectivity, congestion, environmental and energy impacts

- Solutions or implementation program comprised of proposed projects, strategies and other actions to be taken to implement the Corridor Plan objectives
- Prioritization of improvement projects based upon scenarios of anticipated available funding
- Detailed information and mapping for all projects

Implementation of the Portland-Cannon Beach Corridor Plan will occur over many years. During that time, it will be necessary to update and revise the Plan to reflect changing conditions and policy direction or to better achieve Plan objectives. Corridor Plan objectives call for maintaining a corridor-wide advisory group to assist ODOT in periodically prioritizing management solutions, reviewing local government transportation system plans for conformance with the Corridor Plan, and assisting in updating the Corridor Plan as needed. Refinement planning will also occur to address outstanding environmental land use or other issues. Agency and public input will be solicited during refinement planning and Corridor Plan updates.

The Portland-Cannon Beach Corridor (figure included in the appendix) serves both urban and rural transportation needs. Though multimodal, the corridor is dominated by auto use on US Highway 26, which is part of the National Highway System. US 26 is one of two major tourist routes to the north coast and also provides the primary access from Portland to the Tillamook area through its connection to OR Highway 6.

The Corridor as whole is significant to the state of Oregon for many reasons. It connects the state's largest urban area with the Oregon Coast, a major recreational destination. It promotes economic development both within and outside the urban area by providing access to markets and promoting tourism, a very important industry at the west end of the Corridor. The Corridor also passes through difficult topography and environmentally sensitive areas, the needs of which must be balanced with the need to maintain access. In addition, the Corridor contains several rural community centers, such as Manning. Elsie, and Jewell Junction. These areas depend to a large extent on tourist traffic, lodging and truck freight traffic for their livelihoods, but want to maintain their unique rural character.

3.04.20 Key Management Direction

The Corridor Plan includes a series of objectives, strategies and projects to enhance the Corridor's ability to serve commuter, recreational, and freight travel between Portland and Cannon Beach Junction. Consistent with OTP objectives to promote a balanced multi-modal transportation system, the Corridor Plan promotes transportation demand management (TDM) and system management (TSM) strategies as the first course in addressing future needs, especially within the urban portion of the Corridor. These TDM and TSM strategies include the development of support facilities for transit and other non-motorized modes, as well as retaining railroad and air services as an effective means of transport.

Another overall theme is cost-efficiency. With limited capital improvement and maintenance dollars available, ODOT must stretch its revenues as far as possible. This is accomplished in the Corridor by combining projects for a single mode into multimodal projects where possible. For example, combining bicycle shoulder improvement projects with highway widening and passing lane projects benefits bicycles, pedestrians, and the movement of truck freight, as well as autos. This allows the implementation of bicycle projects that would not be cost-effective as stand-alone projects. To the greatest extent possible, projects identified that improve transportation balance in the Corridor are pursued through maintenance, operations, management, and service projects that minimize capital expense.

3.04.30 **Other key management direction includes:**

3.04.31 • **Relieve congestion.** This is addressed by capacity expansion in the urban area pursuant to the Regional Transportation Plan and by construction of limited improvements, e.g. climbing and passing lanes, in the rural areas. These approaches are appropriate given existing and proposed traffic volumes and environmental sensitivity.

3.04.32 • **Support use of alternative modes of transportation.** Transit, bicycle and pedestrian modes play a major role in the urban area, while in the rural areas these modes have a smaller role. Transit can make a significant difference in the demand for highways in the urban area. Given the distances between community centers in the rural portion of the Corridor and the low traffic volumes, transit's role is more limited. Projects identified provide opportunities for transit service to be increased outside the urban area as market demand warrants.

3.04.33 • **Access Management.** In the urban portion, grade separated interchanges manage the flow of traffic on and off of US 26. In rural areas, access management can preserve the rural residential character of community centers by providing a safer pedestrian and bicycling environment, as well as managing the flow of auto traffic through the area.

3.04.34 • **Economic Development.** In the urban portion, the focus is on moving raw materials into the region and finished goods to port facilities, railroads, and trucks for shipment to markets. This is accomplished by maintaining capacity on the highway system and managing demand. In the rural area, the highway provides access to recreational and tourist destinations that fuel the local economies. In addition, the highway and railroads move raw materials, such as logs and aggregate, from the forested portions of the Corridor. In the rural areas, passing and climbing lanes maintain travel times to assure that access is preserved.

3.04.35 • **Develop transportation facilities appropriate to the surrounding environment.** Controlled access freeways in the urban area are appropriate, given the character of the area and tremendous travel demand. However, such an approach in the rural areas is not warranted and would not be cost-effective when environmental impacts are considered. A number of projects considered were generated by ODOT needs analyses that brought all substandard portions of US 26 up to standard. This does not take into account the Coast Range and concomitant grades or the presence of natural and cultural resources. Many of these projects were either eliminated or scaled back in recognition of their enormous expense and environmental impacts.

3.04.36 • **Land Use Coordination.** In all areas of the Corridor, the Plan supports and strengthens the connection between land use and transportation facilities and programs. In the urban area, the RTF proposes a series of high density "centers" connected by highways and transit. At the urban fringe, Metro's Green Corridor policy establishes policies for development adjacent to the urban growth boundary, including for the area between the UGB and North Plains. In rural areas, city and county comprehensive plans are the guiding land use documents. The Corridor Plan is careful in all instances to support applicable land use laws and policy in the Corridor.

3.04.40 Approach to Key Issues

Congestion and travel times in the urban area are expected to increase even if high levels of improvements are applied. Costs of highway improvements are enormous compared to the time savings. Consequently, Corridor Plan solutions emphasize:

- Support for TSM and TDM measures, reducing SOV trips, limited capacity expansion (6 through lanes), reliance on transit, and improvements to the city and county streets networks for intracity trips (Cornell, Walker, West Union and Cornelius Pass).
- Completion of the road projects as part of the Westside LRT (Phase 3 Sylvan to Camelot and Highway 217 to Camelot widening of US 26) and the widening of US 26 from Highway 217 to Murray Boulevard.
- Widening of US 26 to 185th Avenue within the 20-year planning horizon.
- Improvements to existing interchanges (Cornelius Pass and Shute Road) and development of over crossings (143rd, 173ld/174th and 235th).

The Glencoe Road Interchange and Jackson School Road intersection improvements are included in both Metro's RTP and the Corridor Plan. The Glencoe Road interchange is a phased development designed to accommodate urban traffic rather than local demand.

Phase 1 improvements are targeted to the eastbound movement to US 26. Phase 2 improvements would reconstruct the interchange, including a wider overcrossing permitting left turn storage, bicycle lanes and sidewalks.

On April 6, 2004, the Oregon Freight Advisory Committee (FAC) prepared a High Priority Freight Mobility Projects Report for the Oregon Transportation Commission meeting on April 28, 2004. The FAC reported this recommendations pursuant to direction in House Bill 3364 from the 2001 Oregon Legislature and House Bill 2401 from the 2003 Oregon Legislature.

The FAC's process for developing a list of high priority freight mobility projects for the 2006-2009 STIP consisted initially of obtaining input and other information from FAC members, ODOT Region staff, and regional and local transportation system plans. This resulted in a substantial number of projects that needed to be narrowed down to a number more manageable in size. Through the application of the Eligibility Criteria, the FAC narrowed the list to 215 projects. To further narrow the list, the FAC asked ODOT Region staff to apply the Prioritization Factors that led to a list of 56 projects statewide.

In November 2003, the FAC circulated the list of 56 projects to Metropolitan Planning Organizations (MPOs), Area Commissions on Transportation (ACT), the Association of Oregon Counties, and the League of Oregon Cities. Three MPOs, nearly all the ACTs, 15 cities, 6 counties, 3 ports, numerous businesses, and several chambers of commerce and economic development groups submitted letters and other materials by the March 1 deadline. After March 1, the FAC reviewed the materials submitted and other available information and added 10 projects to the list of 56. At the same time they decided to drop 10 projects for which no Prioritization Factor information was submitted. This resulted in a final list of 56 projects.

As a result of this process, the Glencoe Road at Highway 26 interchange is included in the list of projects recommended to be funded by the FAC. The project calls for the construction of a new interchange at a cost of $14 million.

ODOT is now planning on constructing a new Jackson School Road interchange. As part of this, in February 2004 ODOT completed an Interchange Area Management Plan (IAMP) for the proposed interchange. The IAMP indicates that the primary purpose of the project is to improve safety. The original intersection configuration created many safety concerns with traffic crossing US 26 to access Jackson School Road. These issues led to funding interim modifications and subsequently to finance interchange improvements using the Oregon Transportation Investment Act (OTIA). In 2002 ODOT modified the intersection to restrict all north-south crossings and some turning movements as interim safety measures to address the most serious traffic safety issues prior to the construction of the full interchange.

Construction of the Jackson School Road interchange and development of the IAMP are included in the project list of the US 26 Corridor Plan. Safety is indicated as the primary justification. An interchange was considered to be a logical mitigation of safety problems without impacting area circulation. When the plan was developed, funding had not been identified for the interchange project and it is listed as an "unconstrained" project and as such it was not expected to be funded within the 20-year planning horizon. However, funding has since been identified so the project is moving forward.

The following are a few of the assumptions that were made in developing the US 26 Corridor Plan and that are relevant to the IAMP:

- A "Neighboring Cities" study examined the potential impacts of regional growth management strategies on North Plains, including the need for UGB amendments.
- Assumptions regarding the eastern portion of the US 26 Corridor are based upon Metro's Region 2040 Growth Concept and include:
    1. Limited UGB expansion
    2. A Green Corridor along US 26 from the Metro UGB to North Plains
    3. Significant growth in local intra-city trips
- The rural portions of the US 26 Corridor (west of North Plains) will continue in resource uses, e.g., agriculture and forestry with growth generally confined to urban reserves.
- All uses of US 26 will increase during the 20-year planning period.

North Plains proposes a UGB expansion to the north and east of the city. The eastern expansion area encompasses approximately 72.5 acres south of West Union Road and west of Jackson School Road. The IAMP recognizes the potential effects of the UGB expansion on the Jackson School Road interchange and includes measures to ensure that ODOT is involved in discussions prior to future UGB expansions. The traffic analysis for the interchange project considered the proposed UGB expansion and concluded that the expansion would not negatively affect interchange operations.

The Jackson School Road interchange will be built according to ODOT's standards for rural interchanges and in accordance to the assumed limited UGB expansion. When completed, the interchange will be outside of the Metro and North Plains UGBs. Replacement of the intersection with an interchange is in accordance with the assumption that all uses of US 26 will increase during the planning period. It is anticipated that the interchange will provide improved safety and efficiency over the existing intersection.

To address the lack of rural transit services, the Corridor Plan proposes development of a public/private partnership to provide transit service between the outlying communities in the Corridor, the Westside LRT station and the regional transit system in Hillsboro. The Corridor Plan also recommends intercity bus service for the Corridor that may also include recreation/tourist service directly from the Portland Airport to the coast.

To help limit the growth of truck freight within the Corridor, the Corridor Plan supports expanded freight movement by rail, particularly bulk commodities such as aggregate, forest and agricultural products.

Expansion of freight movement by rail is expected to limit the overall growth in truck freight movement. However, there will be an increase in future truck traffic as the "Tillamook Burn" comes on line for harvesting. Some of this traffic will travel to intermodal port facilities on the coast, as well as to Portland.

3.05.00 SUNSET HIGHWAY INTERCHANGE STUDY

The study was completed by DKS Associates in August 1998 and was located along US 26 between 185th Avenue and Glencoe Road in Hillsboro, unincorporated Washington County and North Plains. There are currently four interchanges and one at-grade intersection within the study area, with the at-grade intersection planned as an interchange in the future.

According to the study, the following improvements are planned in or near the study area:

- Closure of Oregon Electric Railroad south of US 26 just east of Cornelius Pass Road interchange and removal of train trestle over US 26
- Cornelius Pass Road Interchange Improvement: Improve interchange to facilitate traffic flows on and off of US 26 (RTP Project List-Round 2, "preferred")
- Build new diagonal ramps in NE and SE quadrants , add ramp meter storage at Cornelius Pass interchange
- Improvements to interchange currently out for bid-includes lengthening and widening of ramps to and from the east, moving eastbound ramp meter signal to provide additional vehicle storage, traffic signal at eastbound ramps
- Shute Road/Cornell Corridor: Improve primary access route from regional center to US 26.
- Installation of an eastbound right turn deceleration lane on US 26 at Jackson School Road
- Street lighting project at Jackson School Road (ODOT completed this project)

3.05.10 Jackson School Road Interchange

For purposes of this study, the Jackson School Road interchange area was defined as the intersection of US 26/Jackson School Road and the segments of Jackson School Road within approximately 1,000 feet of the interchange on either side (i.e. to the north and south of US 26).

The US 26/Jackson School Road intersection currently consists of an at-grade intersection with stop sign control for the northbound and southbound approaches as well as for the eastbound and westbound left turn movements (there is an area in the median to store turning vehicles). The intersection currently operates at LOS F during both the morning and evening peak periods. The poor level of service at this intersection is due primarily to the very high traffic volume both eastbound and westbound on US 26.

Jackson School Road/US 26 is the 62nd highest accident location in Washington County for 1994-1996 (one fatality, two severe injuries, 13 moderate injuries and eight minor injuries in a three-year period), based on Washington County's SPIS List.

The following table summarizes intersection levels of service for existing and 2015 (without improvements) scenarios.

Intersection Level of Service
Existing and 2015 (without improvements)

Period	Existing LOS V/C	2015 LOS V/C
AM Peak	E/F	F/F
PM Peak	C/F	F/F

3.05.20 Planned Improvements

The following improvement is planned in the vicinity of the proposed project:

- Installation of an eastbound right turn deceleration lane on US 26

The Washington County Transportation Plan does not include any other programmed improvements in the immediate area near the proposed site. ODOT conducted an Environmental Assessment for a proposed interchange at this location in 1987. Channelization improvements at this location are included in the RTP and an interchange at this location is included in the Draft Hillsboro Transportation System Plan. ODOT already owns right-of-way adjacent to the existing Jackson School Road/US 26 intersection, intended for use in construction of an interchange.

The failure in capacity is caused by the following impacts:

- At grade left turns at this location (any direction) will not operate at an acceptable level of service, nor would they be safe, due to the high traffic volume and high speeds on US 26 (eastbound and westbound). Growth in traffic between now and 2015 exacerbates this problem.

- Safety is a major concern due to high speeds and high volumes on US 26, any permitted left turns or crossing movements at-grade create safety concerns.
- For right turning traffic, adequate deceleration and acceleration lanes should be provided.
- Bicycle and pedestrian access at this interchange will be extremely difficult in the future, due to high traffic speeds and volumes on US 26.

At this intersection the nearest access points are located approximately 200 feet (Victory Lane, to the south) and 300 feet (farm access driveway, to the north) from US 26. Both are low volume roadways and beyond these access points, it is well over 1,000 feet to the next access point, both north and south.

3.05.21 Alternatives

Several alternatives were considered for intersection/interchange options at this location. Safety is a major concern and was considered for each of the alternatives. Also, preservation of access was a concern since this interchange provides access to employment, Hillsboro, North Plains and private land holdings. Since the Hillsboro Regional Center is the only one not directly served by a freeway, maintaining multiple points of access from US 26 (a filter system) is important. Without the filtering system for access, the regional center development could be impacted.

The following alternatives were forwarded for further study:

3.05.22 Alternative 1. Construct interchange in standard diamond configuration - This alternative is a standard diamond interchange configuration that adequately addresses traffic needs at this location well into the future. Every potential turn movement is serviced and safety concerns are nearly eliminated. In the future (year 2015), traffic signals are not warranted at the ramp intersection with Jackson School Road. The concern with this alternative is that it is expensive since it requires an overcrossing structure and four new interchange ramps. There is no reasonable phasing for this alternative since the overcrossing structure is necessary prior to any other portion of the interchange.

3.05.23 Alternative 2. Only allow right turn movements. Prohibit all left turn movements and northbound and southbound through movements - This alternative only allows right turns on and off US 26. All left turns and north/south through movements are prohibited. This is the only feasible short term alternative (not requiring an overcrossing structure) in terms of safety. The permission of other through or left turn movements increases the potential for conflicts due to high speeds and high volumes on US 26. However, the provision of the westbound left turn movement should be considered in any further evaluation of the alternative. This is the highest volume movement that would be impacted by this option. Addressing this movement in some fashion reduces the impact to other interchanges. This alternative creates a significant impact (out-of-direction travel)

to those vehicles that currently use this intersection and a potential impact for farm vehicles using this access to cross US 26.

Order of magnitude cost estimates was developed for each of the alternatives that were selected to be forwarded for further study. These cost estimates are intended for comparing alternatives and should be further refined when a preferred alternative is selected. The following table summarizes these costs.

Order of Magnitude Cost Estimates (1998 Dollars)

Alternative	Cost
1	$8 M
2	$300 K

3.05.30 Glencoe Road Interchange

For purposes of this study, the Glencoe Road interchange area was defined as the intersection of US 26 at Glencoe Road and the segments of Glencoe Road within approximately 1,000 feet of the interchange on either side (i.e. to the north and south of US 26), including Glencoe Road and Glencoe Road/Highland Court.

The Glencoe Road interchange consists of a two lane overcrossing with on and off ramps in a diamond configuration. There is a traffic signal at the westbound ramps intersection and the eastbound off-ramp is controlled by a stop sign (north/south movements are uncontrolled at this location). This interchange is regularly used as part of a route linking US 26 with Forest Grove (via Glencoe Road, Zion Church Road, and ORE 47).

The following is a list of existing deficiencies/needs:

- Existing intersection level of service is B at the westbound ramps for both the AM and PM peak hours. At the eastbound ramps the major street left/minor street lefts operate at A/E in the AM peak and A/F in the PM peak. The key issue at this location is the heavy volume of southbound traffic.
- Traffic signal warrants are currently met at Glencoe Road/US 26 eastbound ramps for AM peak hour.
- 75-foot northbound left turn lane is currently warranted on Glencoe Road at the US 26 westbound ramps.
- 300-foot southbound left turn lane is currently warranted on Glencoe Road at the US 26 eastbound ramps.
- A northbound right turn lane is warranted at the eastbound ramps.

- The existing gas station in the southeast quadrant of the interchange area operates very close to the public right-of-way, creating a safety concern due to access movements.
- Neither westbound ramps nor eastbound ramps are listed on Washington County's list of high accident locations (SPIS List).
- A sidewalk is only provided along the east side of the overcrossing structure and no bike lanes are provided.

3.05.31 Planned Improvements

No planned or programmed improvements in the immediate area near the proposed site have been identified.

3.03.32 Future Deficiencies/ Needs

- Traffic signal warrants are met at Glencoe Road/US 26 eastbound ramps for both AM and PM peak hours in 2015
- 350 foot Southbound left turn lane will be warranted in 2015 on Glencoe Road at the US 26 eastbound ramps
- Dedicated northbound right turn lane is needed at the eastbound ramps
- North Plains land use forecast (1994-2015) included an increase in households from 960 to 1.530 (+570) and an increase in employment from 610 to 730 (+120). Also, an additional 75 acres of industrially zoned land was added into the forecast (recently annexed into the UGB and City)

3.05.33 Alternatives

Several alternatives were considered at this location. Serving left turning traffic (from Glencoe Road) at both the westbound and the eastbound ramps was determined to be a priority since turn lane warrants are met today and the lack of these turn lanes is a safety issue. Otherwise trying to improve capacity without large cost was considered.

The following alternatives were forwarded for further study:

3.05.34 Alternative 1. Widen structure to include northbound and southbound left turn lanes, install traffic signal at eastbound ramps. Install dedicated northbound right turn lane at eastbound ramps. Extend southern approach to provide adequate grades. Close first access on Glencoe Road north of interchange. This alternative consisting of the widening and/or reconstruction of the overcrossing structure to include left turn lanes northbound and southbound, is the most logical long-term solution for this interchange. It mitigates identified safety issues and provides sufficient capacity well into the future. However, it is expensive, and other improvements may need to be considered to improve operations in the short term.

3.05.35 Alternative 2. Install dedicated (free) northbound right turn lane at eastbound ramps (interim improvement). This alternative provides a dedicated "free" northbound right turn lane at the eastbound ramps. This is an interim improvement that provides adequate capacity for both intersections in both the short and long term, however, it does not address the safety issue created by the lack of left turn lanes northbound and southbound at the westbound and eastbound ramps, respectively.

3.05.36 Alternative 3. Construct traffic signal at eastbound ramps (interim improvement). This alternative provides a traffic signal at the eastbound ramps as a short-term improvement. A temporary traffic signal could be installed for relatively low cost. This improvement provides adequate level of service in the short term, but does not address the safety issue created by the lack of left turn lanes northbound and southbound at the westbound and eastbound ramps, respectively.

Short-term improvements could be made at this interchange for relatively low cost until such time as funding is available for the preferred alternative (#1). It is likely that the first action would be the construction of a temporary traffic signal at the eastbound ramps since it is relatively low cost and would provide operational benefits for several years to come. The next short-term improvement would likely be the construction of a northbound "free" right turn lane at the eastbound ramps. This improvement would require modification of access at the Arco site; however, it could be constructed at its ultimate alignment.

Order of magnitude cost estimates was developed for each of the alternatives that were selected to be forwarded for further study. These cost estimates are intended for comparing alternatives and should be further refined when a preferred alternative is selected. The following table summarizes these costs.

Order of Magnitude Cost Estimates (1998 Dollars)

Alternative	Cost
1	$4 M
2	$500 K
3	$200 K

3.05.37 Areas for Further Study

Several areas for further study have been identified through the course of this study. Those pertinent to the Glencoe Road interchange follow:

- Ramp metering the eastbound on-ramp
- Small park and ride facility near interchange

- Improved connectivity of the US 26/Dersham Road interchange (west of Glencoe) with county road system serving Forest Grove, reducing impact at Glencoe of the US 26/Glencoe/Zion Church/Martin access route.
- Need to extend westbound off-ramp right turn lane (better North Plains access, addresses long queue caused by Forest Grove bound traffic)

3.06.00 1999 OREGON HIGHWAY PLAN

The 1999 Oregon Highway Plan emphasizes the following:

- Efficient management of the system to increase safety, preserve the system and extend its capacity.
- Increased partnerships, particularly with regional and local governments.
- Links between land use and transportation.
- Access management.
- Links with other transportation modes.
- Environmental and scenic resources.

The plan has three main elements: the Vision, the Policy Element, and the System Element.

3.06.10 **The Vision** represents a vision of the state highway system in the future, summarizes the impacts of economic and demographic forecasts and technologies on highway transportation, and defines the policy and legal context. Oregon's population will grow during the next 20 years, and the total number of vehicle miles traveled will increase with population; however, the rise in vehicle miles traveled per capita which occurred in the 1980s has been moderating as employment growth has moderated and automobile ownership approaches saturation.

3.06.20 **The Policy Element** contains policies and actions under goals for System Definition, System Management, Access Management, Travel Alternatives, and Environmental and Scenic Resources.

Goal 1. System Definition: To maintain and improve the safe and efficient movement of people and goods, and contribute to the health of Oregon's local, regional, and statewide economics and livability of its communities.

Goal 2. System Management: To work with local jurisdictions and federal agencies to create an increasingly seamless transportation system with respect to the development, operation, and maintenance of the highway and road system that:

1. Safeguards the state highway system by maintaining functionality and integrity.
2. Ensures that local mobility and accessibility needs are met.
3. Enhances system efficiency and safety.

Goal 3. Access Management: To employ access management strategies to ensure safe and efficient highways consistent with their determined function, ensure the statewide movement of goods and services, enhance community livability and support planned development patterns, while recognizing the needs of motor vehicles, transit, pedestrians and bicyclists.

Access Spacing (Goal 3, Policy 3A) Access control is necessary in the vicinity of an interchange to promote safe operations. The need for access control in the study area is determined based on ODOT and Washington County standards. The ODOT standards for access control where interchange ramps terminate at a crossroad are currently 1,320 feet past the end of the radii on both sides of the road.

Goal 4. Travel Alternatives: To optimize the overall efficiency and utility of the state highway system through the use of alternative modes and travel demand management strategies.

Goal 5. Environmental and Scenic Resources: To protect and enhance the natural and built environment throughout the process of constructing, operating, and maintaining the state highway system.

3.06.30 **The System Element** begins with an analysis of 20-year state highway needs. It lays out investment strategies for taking care of highway needs and describes an implementation plan for the Highway Plan's goals, policies and actions.

Expressways (Goal 1, Policy 1A) According to ODOT, Highway 26 is classified as an Urban Expressway in the westbound direction and as a Rural Expressway in the eastbound direction. Expressways are complete routes or segments of existing two-lane and multi-lane highways and planned multi-lane highways that provide for safe and efficient high speed and high volume traffic movements. "Expressway" refers to the kind and number of accesses allowed on a highway segment. It does not refer to the ownership of access rights

The primary function of an Expressway is to provide for inter-urban travel and connections to ports and major recreation areas with minimal interruptions. A secondary function is to provide for long distance intra-urban travel in metropolitan areas. In urban areas, speeds are moderate to high. In rural areas, speeds are high. Usually there are no pedestrian facilities, and bikeways may be separated from the roadway.

Some of the design characteristics of an expressway are:

- Private access is discouraged
- Traffic signals are discouraged in rural areas
- Non-traversable medians are encouraged

- Parking is prohibited
- Within urban growth boundaries, bicycle lanes, if any, are accommodated on shoulders or separated facilities

Being classified as an Expressway affects a state highway's mobility standards, access management standards, location of highway segment designations, design and funding. The level of local government review and involvement in the Expressway designation process depends upon whether the highway is an Interstate, Statewide, Regional or District Highway.

3.06.40 Land Use and Transportation (Goal 1, Policy 1B)

The Land Use and Transportation Policy addresses the relationship between the highway and patterns of development both on and off the highway. It emphasizes development patterns that maintain state highways for regional and intercity mobility and compact development patterns that are less dependent on state highways than linear development for access and local circulation.

The overall goal and focus of the Land Use and Transportation Policy is to connect land use and transportation in a way that achieves long-term objectives for the state highway and the local community. In applying the policy, ODOT will recognize the regional and topographical differences of communities throughout Oregon.

ODOT acknowledges that the best way to implement the policy is to establish cooperative working relationships with local governments. This includes a commitment on ODOT's part to:

- Participate actively, early, and continuously in the development of transportation system plans and periodic review.
- Look for creative and innovative transportation and land use solutions to transportation problems.
- Work within the context of acknowledged land use plans and zoning.
- Support planning and implementation of improvements within centers and Special Transportation Areas, including off-system improvements that benefit operation of the state highway system.

The policy recognizes that:

- Local governments are responsible for planning and zoning land uses within their jurisdictions and for developing and managing the local transportation system.
- ODOT is responsible for developing and managing the state highway system.
- ODOT and local and regional governments must work collaboratively to achieve accessibility and mobility goals for a balanced transportation system.

3.07.00 WASHINGTON COUNTY TRANSPORTATION PLAN

The primary purposes of this Plan are to identify the type of transportation system needed to meet the travel needs of Washington County residents and businesses through the year 2005 and to establish policies to guide system development. The County is currently working on a Transportation System Plan. The following are the general policies established in the Plan:

- Mobility Policy: To provide a transportation system that maximizes the mobility of Washington County residents and businesses.
- Efficiency Policy: To seek the greatest efficiency of movement possible for Washington County residents and businesses, in terms of travel time and distance, and efficient management of the transportation system.
- Safety Policy: To maintain and improve transportation system safety.
- Equity Policy: To ensure the cost of transportation facilities and services are borne by those who benefit from them.
- Environmental Policy: To limit and mitigate adverse environmental impacts associated with traffic and transportation system development through facilities design and system management.

Improvement of the streets and highway system is vital to meet the travel needs of existing and future residents and businesses in Washington County and achieve the County's land use and economic development goals. Following are the streets and highway element policies:

- Streets and Highway Capacity Policy: To ensure that the roadway system capacity is sufficient to accommodate the travel demands of County residents and businesses.
- Highway Safety Policy: To provide a roadway system that is safe for motorists, pedestrians and bicyclist
- Functional Classification Policy: To ensure the roadway system is designed and operates efficiently through use of a roadway functional classification system. As part of this policy, the County uses the following classification system: Regional arterials: Freeways and Principal routes
  Major Arterials
  Minor Arterials
  Major Collectors
  Minor Collectors
  Local Streets
- Truck Route Policy: To identify and designate a through truck route system utilizing arterial and major collector roads.
- Road jurisdiction Policy: To retain jurisdiction of a countywide road system that serves major intra- and inter-county travel movements.

Although the County and other local jurisdictions participate in regional decisions affecting transit development and planning, Tri-Met has primary responsibility for transit planning and service in Washington County. Following is the transit policy:

- To provide a transportation system which offers cost effective alternatives to the automobile and to encourage a land use pattern that supports transit.

Demand management is another strategy to address the problem of traffic congestion. Demand management techniques concentrate on reducing the number of vehicles on the road rather than building new or wider roadways. Following is the County's demand management policy:

- To encourage implementation of demand management programs which reduce the number of single occupant vehicle trips and which shift traffic to off-peak travel hours.

This Plan recognizes that bicycles and pedestrian facilities serve transportation functions and are viable components of the County's transportation system. Following is the bicycle and pedestrian policy:

- To provide opportunities for the safe and efficient use of pedestrian and bicycle facilities as an alternative to motorized travel and for recreational purposes.

Washington County's standards access spacing for various street classifications is summarized below.

Washington County Access Spacing

Functional Classification	Required Access Spacing (feet)
Major Arterial	1,000
Minor Arterial	600
Major Collector	150
Minor Collector	50
Local	10

3.08.00 2000 REGIONAL TRANSPORTATION PLAN

From a cursory review of the 2000 Regional Transportation Plan, the following elements were found to relate to the transportation issues in North Plains.

- Cornelius Pass Road Improvements (2000-2005): Widening of Cornelius Pass Road to five lanes between US 26 and West Union Road. This project also will include sidewalks and bike lanes to improve safety (figure 5.14).

- Cornelius Pass Road Interchange Improvement (2000-2005): Construct a full diamond interchange and southbound auxiliary lane to facilitate traffic flows on and off US 26 (figure 5.14).
- Jackson School Road Improvements (2000-2005): Reconfigure the intersection at US 26 to improve safety. This project restricts turn movements and crossing intersection travel (figure 5.14).
- Evergreen Road Improvements (2000-2005): Widen the street to three lanes from Glencoe Road to 15th Avenue. This project also will include sidewalks and bike lanes to improve safety (figure 5.14).
- Highway 26 between North Plains and Portland has been designated as green corridor. Green corridors were adopted as part of the 2040 Growth Concept. They are designated in rural areas where state-owned highways connect neighbor cities to the metro area. The purpose of green corridors is to prevent unintended urban development along these often heavily traveled routes, and maintain the sense of separation that exists between neighbor cities and the Metro region. The green corridor concept calls for a combination of access management and physical improvement to limit the effects of urban travel on the routes on adjacent rural activities.

  In several corridors, Metro has already developed inter-governmental agreements (IGAs) with local governments to address access management issues. However, IGAs are not in place in most corridors, and physical improvements, such as street and driveway closures, landscaping and public signage have not been implemented in any green corridors. During the next several years, Metro will continue to work with ODOT and affected local jurisdictions to complete IGAs for the remaining green corridors, and develop plans for necessary improvements. Such improvements should be incorporated into future updates of the RTP.
- Highway 26 within the limits of the City of North Plains has been classified as Regional Corridor On-Street Bikeway. Glencoe Road south of Highway 26 has also been classified as a Regional Corridor On-Street Bikeway.

3.09.00 CITY OF HILLSBORO TRANSPORTATION SYSTEM PLAN

The City of Hillsboro Transportation System Plan (TSP) Goals and Policies consist of seven goals with related policies organized under each goal. Goals were developed which should reflect community needs and values for many years. The goals are simple, brief guiding statements regarding transportation. The policies focus on how goals will be met by describing the types of actions that will contribute to achieving the goal. The goals of the TSP are as follows:

- Goal 1: Safety. Develop and maintain a safe City transportation system.
- Goal 2: Multi-modal Travel. Provide a balanced City transportation system.

- Goal 3: Trip reduction. Develop a transportation system that helps to reduce the number of motor vehicle trips and contributes to regional goals to reduce per capita vehicle miles of travel.
- Goal 4: Performance. Provide an efficient transportation system that manages congestion.
- Goal 5: Goods movement. Provide for efficient movement of goods and services.
- Goal 6: Livability. Transportation facilities within the City shall be designed and constructed in a manner that enhances livability of Hillsboro.
- Goal 7: Accessibility. Develop transportation facilities that are accessible to all members of the community and minimize out-of-direction travel.

As a consequence of these goals the following are the transportation projects that could have an effect on the transportation system within the City of North Plains:

- Jackson School Road at Highway 26: this channelization/safety project is ranked among the highest priority projects. It calls for access management strategies from Highway 26 to Evergreen Road. In addition, the construction of an interchange is included among the third highest priority projects. This intersection is also a future site for a park and ride.
- Evergreen Road (Glencoe Road to 15th Avenue): this project includes widening the Evergreen Road to three lanes.
- Glencoe Road (1st Avenue to Evergreen Road): This portion of Glencoe Road is proposed to be widened to three lanes.
- Highway 26 at Shute Road: This project is included among the second highest priority projects to include a new loop ramp and interchange modifications. This intersection is also a future site for a park and ride.
- Highway 26 at Cornelius Pass Road: This project is also included as part of the second highest priority projects to build new diagonal ramps in NE and SE Quadrants, and adding ramp meters storage.
- Glencoe Road, Evergreen Road and Highway 26 are also designated as a truck route in the Hillsboro TSP.
- Glencoe Road, Jackson School Road, West Union Road and Evergreen Road are classified as arterials according to the City of Hillsboro functional classification plan.
- Glencoe Road at Evergreen Road intersection is included in the traffic signals master plan to convert it to a signalized intersection.
- Glencoe Road and Jackson School Road at Jacobsen Road are also included in the traffic signals master plan to be converted to signalized intersections. The West Union Road at Helvetia Road is also included as part of the signals master plan.

3.10.00 TRANSPORTATION PLANNING RULE

In 1991, the Land Conservation and Development Commission adopted the Oregon Transportation Planning Rule (TPR). The TPR implements State Land Use Planning Goal 12, Transportation, which was adopted by the Oregon Legislature in 1974. The TPR requires all Oregon cities and counties to undertake a new transportation planning process. Specific to the City of North Plains, the TPR requires that the City must adopt a local/regional transportation system plan to include the following:

- A road plan for a network of arterial and collector streets
- A public transit plan
- A bicycle and pedestrian plan
- An air, rail, water, and pipeline plan
- A transportation finance plan
- Policies and land use regulations for implementing the transportation system plan

In addition, the TPR requires North Plains to:

1) Adopt land use and subdivision ordinance amendments to protect transportation facilities
2) Adopt land use and subdivision ordinance amendments to require bicycle parking facilities between residential, commercial, employment and institutional areas
3) Coordinate plans and policies with Washington County, the Oregon Department of Transportation and the Department of Land Conservation and Development

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN
CHAPTER 4.00

4.00.00 INVENTORY OF EXISTING CONDITIONS

4.01.00 INTRODUCTION

The City of North Plains was incorporated in June 25, 1963, and is located in the northwestern portion of the Tualatin Valley near the edge of the Tualatin Drainage Basin. It is about 2 miles south of the rolling hills of the Tualatin Range. The topography in the area which is generally flat with a gradient toward the southeast. The terrain includes several intermittent drainage ways generally flowing south and east to McKay Creek.

The City is located approximately four miles north of Hillsboro, the County seat, and is about 19 miles westerly from Portland. It is situated on Highway 26, a major regional corridor linking Portland with the coast. In 1999 North Plains had an estimated population of 1,755 people.

North Plains is one of several small communities dispersed in the predominantly agricultural areas of central Washington County. It was platted in 1910 by a predecessor of the Spokane, Portland, and Seattle Railway to serve as a processing and shipping point for locally grown farm and forest products.

The average elevation of North Plains is 200 feet. It gently slopes from 210 feet in the northwest portion of the City to about 190 feet in the southeast. The elevation rapidly falls to about 170 feet along McKay Creek along the east side of the City.

4.02.00 TRANSPORTATION FACILITIES

North Plains is located 19 miles from Portland and four miles north of Hillsboro and is outside the contiguous metropolitan growth boundary. However, it is far from isolated due to a number of transportation advantages.

The Sunset Highway (US 26) is a major regional route connecting Portland with the coast. It forms the southern boundary of the existing City limits and is easily accessible via the Glencoe, Dersham, and Jackson School Road interchanges. Highway 26 is a four-lane, limited access route between Banks (7 miles west of North Plains) and downtown Portland.

Glencoe Road is maintained on the Federal Aid Secondary System (County) as a two-lane rural highway with designated left turn lanes at specific intersections. It connects North Plains with Hillsboro, and with the Dixie Mountain pass to the Columbia River Highway,

about 12 miles north. Private automobile is by far the most widely used form of transportation in and around the City.

4.02.10 STREET SYSTEM

Highways and streets are the primary means of mobility for residents of the City of North Plains. Sunset Highway is the major regional route connecting North Plains with the Portland metropolitan area and suburbs. This highway has a posted speed of 55 miles per hour (mph).

A. **Functional Classification** - As a policy, under the number 1 transportation system objective of the North Plains Comprehensive Plan (15.02.105), the City recognizes the following classification of streets:

- **Regional Arterials** - The designated Regional Arterial within the City is U.S. Highway 26, the Sunset Highway. This road is owned and maintained by ODOT and has been classified as an urban expressway (westbound) and an urban expressway (eastbound).

- **Major Collectors** - Major Collectors are intended to carry traffic from Local Streets or Minor Collectors to the Sunset Highway or other areas. The right-of-way is 60 feet and the minimum improved width varies between 24 feet and 46 feet. Access driveways on Major Collectors will be combined for adjacent properties where practicable. These streets are designed to carry traffic at speeds between 35 and 45 miles per hour. Roadway standard includes asphalt pavement with curbs.

Major Collectors include:
Glencoe Road: 60'-100' right-of-way; 24'-50' of improved street section
Commercial Street: 80' right-of-way; 24'-50' of improved street section
North Avenue: 60' right-of-way; 24' of improved street section with approximately 900' including a 5' pathway
Gordon Road: 60' right-of-way with 24' of improved street section. From Hillcrest to Wascoe the right-of-way is 67'.
Glencoe Road, North Avenue and Gordon Road are currently the only roads under Washington County jurisdiction.

- **Minor Collectors** - Minor Collectors are intended to carry traffic from Local Streets to Major Collectors. The right-of-way is 60 feet and the minimum improved width is 24 feet. These streets are designed to carry traffic at speeds between 25 and 35 miles per hour. Roadway standard includes asphalt pavement without curbs.

Minor Collectors include:
Main Street: 26' of improved roadway. 31' (Commercial to North Avenue), including 5' pathway

Hillcrest (31 lth Avenue to Glencoe): 24' of improved roadway
Wascoe Street (319th to Gordon Road) - Proposed. Currently this street is undeveloped
Pacific Street (307th to Glencoe): 24' of improved roadway
Pacific Street (309th to Glencoe): 41' of improved roadway
Pacific Street (309th to 322nd): 24' of improved roadway
307th Avenue (Highland to Highway 26): 24' of improved roadway
Highland Court (Glencoe Road to 307th Avenue): 24' to 37' of improved roadway
Highland Court (Glencoe Road to 313th Avenue): 24' to 41' of improved roadway
313th Avenue (Highland Court to Commercial Street): 24' of improved roadway
313th Avenue (North Avenue to Hillcrest Street): 24' of improved roadway

- **Local Streets** - Local streets provide direct property access in residential uses. The minimum right-of-way is 60 feet and the minimum improved surface is 32 feet. These streets will be designed to carry traffic at speeds of 25 miles per hour. Roadway Standard: 32 feet paved streets without curbs. Roads that are not included in the list of arterials, major or minor collectors are considered local streets.

The City's major collectors, Glencoe Road, Gordon Road, North Avenue, and Commercial Street are intended to carry traffic from the City to the Sunset Highway or the County's road system. The major collectors have posted speeds of 35 and 40 mph within the North Plains City limits, and most operate under the Basic Rule outside the City. With the exception of Glencoe Road, which has sidewalks and a shoulder bikeway adjacent to a few developments, no major collectors have sidewalks, bike lanes, or on-street parking. Commercial Street in the downtown area has angle parking available on the south side and parallel parking on the north side, with off-street parking available for some of the industrial businesses in the area on the west end of Commercial Street. With the Downtown Development Plan the on-street parking configuration may change but some alternative recommendations have been developed as part of this Transportation System Plan.

The City's minor collectors, Main Street, Hillcrest Street, Pacific Street, and Highland Court are intended to carry traffic from local streets to major collectors. All have posted speeds ranging from 25 to 35 mph. Some minor collectors have sidewalks, bike lanes, or on-street parking.

Of the 13.52 miles of currently platted right-of-way in North Plains, 12.20 miles are paved roads, 0.49 miles are gravel, and 0.83 are undeveloped. In addition, there are 3.1 miles of county roads within the City limits.

Maps of roadway classification, roadway surface type, roadway ownership and existing pavement conditions are included in figures in the appendix of this chapter.

B. Traffic Control -Traffic control devices within the City of North Plains are placed based on the Manual of Uniform Traffic Control Devices (MUTCD) and the Oregon

supplement to the MUTCD. The MUTCD is published by the Federal Highway Administration and is adopted nationwide as the guideline for traffic control devices.

There is only one signalized intersection in the City located on the Highway 26 westbound ramp at Glencoe Road. Much of the remaining streets are controlled by STOP signs at major street intersections.

C. **Traffic Volumes and Peak Hour Operation** - The analysis will focus on the weekday p.m. peak hours. Manual turning movement traffic counts will be conducted in December 2000. Prior counts were made as part of the North Plains Neighboring Cities Project in 1995 and 1996. According to this study, the peak hour was found to be between 4:30 and 5:30 p.m.

Level of Service (LOS) is a concept developed to quantify the degree of comfort (including such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers as they travel through an intersection or roadway segment. Level of service is described by six letter grades, ranging from A (best) to F (worst).

At signalized and all-way stop-controlled intersections, LOS is defined by the average delay experienced by all vehicles passing through the intersection. At two-way stop-controlled intersections, LOS is defined by the average delay experienced by the movement with the highest average delay, typically a minor street left turn movement. Along a roadway segment, LOS is defined by the average through vehicle travel speed on the section of an arterial being analyzed.

Average travel speed is determined from the running time of vehicles traveling between intersections and the intersection total delay for through movements at intersections. It is strongly influenced by the number of signals per mile (signal density) and average intersection delay. LOS D is generally considered to represent the minimum acceptable design standard for signalized intersections, while LOS E is generally considered to represent the minimum acceptable design standard for un-signalized intersections and roadway segments.

According to the Washington County Transportation Plan, the regional peak-hour level of service goal is D with 20 minutes of E. At this level there is moderate traffic congestion, and motorists are likely to stop for one signal cycle at each signalized intersection.

All LOS analyses described in this report are in accordance with the procedures stated in the 1994 Highway Capacity Manual. Figure A illustrates the location of the intersections that have been analyzed as traffic counts were completed in January 2001 for existing conditions. The "Existing Conditions Level of Service Summary"

table in the appendix shows the results of the analysis conducted at all these intersections.

D. **Accident History** - According to City records, there have been five accidents at the intersection of Dersham Road with Highway 26, and fifty accidents at the intersection of Jackson School Road at Highway 26 for the period between 1998 and 2000. For the same period, West Union at Jackson School Road shows three accidents, and Shadybrook Road at Jackson School Road shows one accident.

Also, two of the intersections in the vicinity of the study area were determined to be SPIS (Safety Priority Index System) locations, ranking as the 60th (Jackson School Road/US 26) highest and 131st (Helvetia Road/Jacobson Road) highest accident locations in Washington County.

4.02.20 BICYCLE AND PEDESTRIAN FACILITIES

The transportation objective number two of the City of North Plains has established the following policies for the development of bicycle and pedestrian facilities in a manner that is consistent with the City's livability objectives:

- The City of North Plains shall include bikeways as a transportation alternative in future roadway planning. Bikeways on major and minor arterials and collector streets will be given highest priority for transportation related paths.

- The City of North Plains shall require, when applicable, development of bikeways that connect residential areas to activity areas such as downtown core, industrial areas, other areas of work, schools, community facilities, and recreation facilities.

- The City of North Plains shall require, when applicable, development of subdivision designs that include bike and footpaths that interconnect neighborhoods and the downtown core and industrial areas.

- The City will ensure, within its jurisdiction, access for bicyclists to and from Highway 26 because it is part of the State Bicycle Route System.

- The City will provide safe pedestrian access to schools, parks and shopping to make walking a realistic alternative to driving within the City. The City's highest priority is to provide such pedestrian access as one of the means for achieving the City's livability objectives.

Transportation system objective number three of the North Plains Comprehensive Plan has established the following policies for street connectivity and development:

- The City will promote adequate transportation linkages between residential, commercial and industrial use areas in a manner that is consistent with the City's livability objectives. This will be done through street improvements, new streets, marked turning lanes, warning signs and/or speed reduction in appropriate locations to facilitate connections to the downtown core industrial areas, parks, schools and neighborhoods. Problems identified in the plan are of first priority.

- The City will require developers to aid development of the roadway system by dedication or reservation of needed rights-of-way and by adopting setbacks and other required standards that will keep buildings from interfering with future road improvements.

- The City will require applicants for development in the North Plains urban area to construct streets within and serving the development to City standards including curbs, gutter, and sidewalk and drainage facilities.

- New land developments will be encouraged to reduce the percentage of land devoted to streets.

- Local streets in residential neighborhoods shall include trees and landscaping to achieve a pleasant visual effect as well as to achieve an environment at a pedestrian scale.

- The City will cooperate with ODOT in the implementation of the Six-Year Highway Improvement Program.

A figure in the appendix for this chapter describes the approximate location of existing sidewalks within the City. Bike lanes are non-existent in the current street system. As illustrated in this figure, there is currently a deficiency of bike lanes and sidewalks on arterials, collectors and local streets within the City. The City is planning to add bike lanes and sidewalks to all its arterials and collectors in the future. Developing a bike and pedestrian system is part of the recommendations and implementation of the City of North Plains Transportation System Plan.

Also, as part of the Capital Facilities Master Plan for the City of North Plains Parks and Recreation, a network of trails are recommended to be implemented by the City. McKay Creek and its tributaries are recommended as a system of public green ways and open space, including all-weather trails and pathways. The Plan recommends that recreational functions of the creeks corridors should be limited primarily to open space and habitat preservation, flood control, horseback riding, cycling and walking on all-weather surface paths, and nature recreation. A map of these potential trails is included in the appendix for this chapter in this document.

Following are some additional policies on bicycle issues that the City should consider:

Policy 1: Develop a continuous and convenient bicycle network

- Coordinate with ODOT and Washington County to develop consistent design standards and classifications for bicycle facilities on multi-modal streets in North Plains to assure that bicycle facilities are appropriate to the traffic volume and speed.
- Install detector loops that allow bicyclists to trigger traffic lights while traveling on the road.
- Develop a destination-based sign code that identifies major destinations accessible to bicyclists from the bicycle-way.
- Require preferential parking and accessibility for bicycles for all multi-family, commercial, industrial and community service uses.
- Acquire access easements along major power line corridors and abandoned railroad rights-of-way.
- Integrate on-street bicycle-ways with multi-use paths and other bicycle facilities identified in the Trail Master Plan. Create and promote a City owned bicycle fleet for official employee use.
- Implement design options that reduce traffic speed while providing bicycle facilities as part of the local street improvements and neighborhood traffic control projects.

Policy 2: Support programs and projects to improve bicycle safety and reduce the rate of bicycle related accidents.

- Support bicycle rodeos and other local events that promote bicycle safety.
- Work with appropriate jurisdictions to remove obstructions and hazards from bicycle
- Establish a bicycle facility maintenance schedule and a procedure for quick response to bicycle facility maintenance and safety problems.
- Create a bicycle education and safety program to present to schools and to the general public.

Following are some additional policies on pedestrian related issues that the City should consider:

Policy 1: Provide pedestrian facilities that are continuous, accessible, and adaptable to all users.

- The City's top priorities for pedestrian improvements are: sidewalk infill, elimination of pedestrian barriers and development of school walk routes. Identify and prioritize these projects in the capital improvement program.
- Coordinate with Washington County and ODOT to develop consistent design standards for pedestrian facilities on arterial and collector streets in North Plains including sidewalks, pedestrian crossings, and pedestrian refuges.
- Require the construction of appropriate pedestrian facilities as part of all transportation capital improvement projects, including road construction, reconstruction, traffic calming, and intersection improvement projects. Develop

pedestrian facilities consistent with the City of North Plains Parks and Recreation Capital Facilities Master Plan.

- Incorporate in the trail and park systems any special or unique sites for nature trails, scenic walkways, exercise circuits, or other special purpose trails. Require internal pedestrian circulation within residential, commercial, industrial and community service development
- Identify project areas for comprehensive pedestrian improvements, including traffic calming, signal improvements, crossing treatments, and pedestrian amenities.
- Ensure that the needs of pedestrians are considered in the timing plans of all traffic signals
- Implement design options that reduce traffic speed, while providing pedestrian facilities as part of local street improvements and neighborhood traffic control plans.

Policy 2: Develop safe pedestrian environments.

- Increase traffic law awareness and enforcement in pedestrian districts.
- Develop educational program events.
- Coordinate with school personnel and parent groups to identify and mitigate obstacles to walking to school through a School Walk Routes program.
- Coordinate with public and private utilities to remove obstacles from sidewalks and to provide an alternative location for utilities within the right-of-way or easements.
- Develop neighborhood walking guides.

4.02.30 TRUCK ROUTES

The City currently does not have a truck route policy but they are experimenting with signage to direct trucks into specific collector streets. The City of North Plains has an existing conflict with trucks using Commercial Street, which is part of the downtown area. Trucks now travel on Commercial Street to connect to the Glencoe Road at Highway 26 interchange. Aggravating this problem is the fact that trucks can not go under the Gordon Road railroad trestle due to its height restriction.

The City received a grant from ODOT to raised the Gordon Road trestle that will allow trucks to utilize a connections from Gordon Road into Mountaindale Road and direct them to the Dersham Road interchange that is currently underutilized. This improvement will allow a safer routing of trucks and would make the downtown and residential areas in the City more bike and pedestrian friendly.

4.02.40 RAIL

The Willamette Pacific Railroad contains a single-track line through the center of North Plains connecting Banks with the Portland rail yards. At least five times a day, five days a week trains carry forest products and milled lumber as well as various seeds and produce

from Portland. Burlington Northern maintains a storage siding at North Plains. As timber is harvested over the next 10 to 15 years in the Tillamook Burn region, this rail line will become increasingly active.

4.02.50 AIR

The residents of the Air Acres subdivision, immediately south of Highway 26, maintain a landing strip complete with lights and windsocks. This is a private field, available to the public for emergencies only. It is 3,000 feet long and can accommodate small, general aviation aircraft.

The Port of Portland operates the Hillsboro Airport about 5 miles from North Plains. The Hillsboro Airport is an FAA approved general aviation airport with two runways (4,050 feet and 6,600 feet in length) that accommodate prop and small jet traffic. Hangar space is available as well as repair and maintenance service.

The Port of Portland's International Airport is located in Portland, about 35 miles from North Plains. East of Dersham Road and north of Highway 26 there is a glider landing area.

4.02.60 PIPELINE

Pipelines transportation in and through the City of North Plains urban area includes transmission lines for electricity, cable television and telephone service; and pipeline transport of water, sewer and natural gas.

4.02.70 RIDE CONNECTION

Ride Connection started out as a Tri-Met project in 1985 and incorporated as Volunteer Transportation, Inc. in 1988 after a citizen's committee advised Tri-Met that they could better serve its customers by involving volunteers to provide transportation services. Recently the name has been changed to Ride Connection.

Ride Connection provides the following:

- Serves those without viable transportation alternatives in urban and rural areas. Serves both inside and outside of the Tri-Met service district.
- Is not limited to the 3/4 mile boundary of a fixed-route bus as the LIFT program is.
- Provide operating funds for community transportation programs providing service for the elderly and people with disabilities in the service area.
- Coordinate with community partners to create new programs where non-exist and enhance and support existing programs, rather than duplicate what already exists.

Ride Connection currently has two types of service partners. They contract with community transportation programs to serve elderly and people with disabilities in a specific area. Ride Connection also contracts with agencies that serve clientele who qualify for their services.

Ride Connection is currently working on ridership projections for the upcoming years for the City of North Plains.

4.03.00 EXISTING LAND USE

According to the Residential Vacant Lands, Infill and Re-development Study prepared for the City of North Plains in April 12, 2000[LR1] the land use inventory revealed 417.6 acres of land in the City limits, including the recent eastern annexation.

The City has 23 percent vacant land, which is 96.7 acres in size. Of these 96.7 acres, 64.3 acres is zoned industrial where 54.8 acres is in the recent annexation, and 9.5 acres is in the central city. Vacant residential land comprises 20.0 acres or approximately 21% of the total vacant land, and vacant commercial land comprises approximately 13% of the total vacant land.

Presently there are 5.5 acres developed park/playground area located at the Community Center, City Hall area, and elementary school. Churches, a senior citizen center, the City Hall, and the Jessie Mays Community Hall are available for indoor activities. Outdoor activities are available nearby in the surrounding countryside, such as horseback riding, hiking, fishing, biking, gliding, and golf. The recreational facilities existing in North Plains are determined inadequate to meet the future population growth needs.

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN
CHAPTER 5

5.00.00 TRANSPORTATION SYSTEM ALTERNATIVES

Long term transportation improvement needs for the City of North Plains were examined based on the results from the operational analyses of the street system, field reconnaissance, future travel demand forecasts of land use plan alternatives, previous reports prepared for the City and discussions with the Management Team (MT) and Transportation Advisory Committee (TAC). The MT is composed of ODOT, City and Washington County representatives. The TAC is composed of North Plains citizens, City staff. Entrance is the consulting firm preparing this work as part of a Transportation and Growth Management Grant.

The Transportation Planning Rule (TPR) requires local jurisdictions to adopt ordinances and regulations to protect transportation facilities. This chapter also includes a summary of street functional classification standards and policies that together form the City of North Plains Access Management Plan.

5.01.00 FUTURE LAND USE/DEMOGRAPHICS

A twenty-year planning horizon (2000-2020) was chosen for the study to identify future demographic conditions from which future traffic forecasts were developed. Beyond the twenty-year planning horizon population, employment and future travel demand forecasts become more speculative and less reliable for identifying future infrastructure needs. This section summarizes the development of future population and employment figures that were used to develop travel demand forecasts for the City of North Plains.

This Future Travel Demand Forecast was prepared by David Evans and Associates, (DEA) to assist Entrance, with the preparation of the North Plains Transportation System Plan (TSP).

The tasks accomplished include a forecast of future population and employment (prepared as a separate technical memorandum), a 20-year projection of traffic volumes for the existing plus committed transportation system, and an evaluation of future capacity deficiencies.

5.01.10 Travel Demand Forecast Methodology

The traffic forecast prepared for the City of North Plains was based on a cumulative analysis of existing traffic combined with forecasted traffic that would be generated by approved site developments and planned land uses in the city, including projected increases in through traffic. The primary purpose for a cumulative analysis is to analyze the effects of traffic and population growth on a city's transportation network. The traffic forecast is consistent with ODOT Transportation System Planning Guidelines for a Level 2 cumulative analysis, which is typically used for cities like North Plains where the population is between 2,000 and 10,000. Although the population of North Plains is around 1,780 today, the projected population for the planning year 2020 is 3,750, which is within this range.

The traffic forecast was prepared in a three-step process. First, an in-depth assessment was made of any approved site developments and planned land uses within and around the city and to estimate the amount of traffic that could be generated by these activities during the 20-year planning period. The second step was to estimate future increases in through traffic, or traffic that will pass through the city without stopping. In the third and final step, the estimated increases in traffic generated by future land use activities and additional through traffic were added to the existing traffic volumes observed at all 13 study area intersections in North Plains.

As a check for consistent growth patterns, the forecasted growth in traffic was then compared to the population and employment growth projections for the city.

5.01.20 Traffic Generated by Approved Site Developments

Currently, the master plans for two site developments in North Plains are being reviewed by the Planning Commission for approval. Construction of both developments is expected within the next two years. Each development has an identifiable location and specific type of land use, where the traffic generated by each development can be realistically estimated and assigned to the local street network. The first development is located on the southeast corner of the intersection at North Avenue and Gordon Road and would consist of approximately 12 acres of mixed-residential housing. It is estimated that this development would consist of 50 units of multi-family housing and 50 units of single family homes. The second development is located along Glencoe Road south of Cottage Street and would consist of 15,000 square feet of commercial space, most likely for office use. The following table summarizes the estimated trip generation for these developments based on the *Institute of Transportation Engineers (ITE) Trip Generation Report, 6th Edition.*

IV. Trip Generation for Approved Developments						
Land Use	AM Peak Hour			PM Peak Hour		
	Total	Enter	Exit	Total	Enter	Exit
50 Apartments (ITE Code 220)	25	4	21	31	21	10
50 Single Family Homes (ITE Code 2 10)	37	9	28	5	32	18
1 5,000 sq. ft. Office Bldg. (ITE Code 7 10)	41	36	5	96	16	80
Total:	**103**	**49**	**54**	**177**	**69**	**108**

The traffic to be generated by these developments was assigned to the roadway network based on the existing traffic patterns observed in the traffic counts.

5.01.30 Traffic Generated by Redevelopment and Infill of Residential Land within the City Limits

Used as a resource for assessing the future year 2020 land needs within the city limits of North Plains, *Work Product Number Four: Direction of Growth and Specific Needs Analysis*[1] indicates that with redevelopment and infill potential, a total of 976 units of housing can be accommodated within the existing city limits. Using an accepted average density of 2.5 persons per household, this equates to a total of 2,440 residents within the city limits. The remaining 1,310 residents of the total 3,750 planned for the future year 2020 are to be located outside the present city limits and within selected UGB expansion areas (discussed in the following section).

With 637 housing units currently within the city limits today, additional 339 units can be accommodated by the year 2020. Considering the 100 units to be constructed as part of the approved housing development mentioned previously, a revised total of 239 additional units can be accommodated within the city limits by year 2020.

Using the above figures, the expected rate of growth in housing in the city is projected to be 32.4% over the next 20 years ([976/(637+100)]= 1.324). This equates to a 1.41% compounded average annual growth. This growth trend was then factored into the existing traffic volumes observed at the 13 study area intersections for the AM and PM peak hours, with the assumption that traffic volumes will increase on the local street network at the same rate as housing/population growth within the city limits.

5.01.40 Traffic Generated by Planned Land Uses within UGB Expansion Areas

On January 2, 2001, the North Plains City Council formally approved the expansion of the Urban Growth Boundary (UGB), based on the results of the periodic review process, and the findings of the land needs analysis documented in *Work Product Four.* To accommodate future year 2020 land use needs, the UGB would expand into two separate areas. The "North" UGB expansion area would be located along the north side of North Road between Main Street and 309th Street. The "East" UGB expansion area would be located along the south side of West Union Road and the west side of Jackson School Road.

A breakdown of the future land use needs within each of the UGB expansion areas and the totals for both areas combined are provided in the following table. This table is based on the gross acreage information approved by the City Council and information from the land use needs assessment in *Work Product Four (Subsection C),* which establishes a relationship between gross acreage and net develop able acreage. For the purposes of this traffic forecast, the land use designations approved by the City Council were disseminated into individual land uses without changing the overall totals. For example, all parks and green ways were extracted from housing designations and combined into one category. These changes were made so the trips generated by each individual land use could be estimated.

V. Land Use Needs for UGB Expansion Areas						
Land Use Type	**North**		**East**		**Total**	
	Gross Acres	**Net Acres**	**Gross Acres**	**Net Acres**	**Gross Acres**	**Net Acres**
Residential [1]	54.8	36.4	41.6	27.6	96.4	64.0
Commercial	3.0	2.4	4.8	3.9	7.8	6.3
Industrial	0.0	0.0	0.0	0.0	0.0	0.0
Institutional	7.1	5.7	5.5	4.4	12.6	10.1
Schools	0.0	0	11.0	8.8	11.0	8.8
Parks and Greenways [2]	20.1	16.1	15.1	12.1	35.2	26.2
Total	**86.0**	**60.6**	**78.0**	**56.8**	**164.0**	**115.4**

Notes: This table was created to summarize the individual land uses planned for both UGB expansion areas, for the purposes of performing a trip generation. It is based on the land uses adopted by the City Council on January 2. 2001 and the relationship between gross and net acres as identified in *Work Order 4 (Subsection C.).*

(1). In a phone conversation with the City Manager, it was determined that the small parcels of Exception Lands not in the flood plain should be included in the Residential Lands category, since most of these lands contain housing today or would be redeveloped for residential uses.

(2). All park and green way acreage were subtracted out of the adopted housing designations and grouped into one category, only for the purpose of developing a trip generation for individual land uses.

As shown in the table above, a total of 96.4 gross acres (64.0 net acres) are needed for residential uses. Fully developed under an accepted density of 8.4 units per net acre, this equates to around 537 units. Using an accepted average density of 2.5 persons per household, this equates to approximately 1,342 residents.

The traffic which could be generated by full development of the net acreage in the combined North and East UGB expansion areas was already estimated in a technical memorandum titled *North Plains Trip Generation Analysis,* produced by Charbonneau Engineering LLC and dated October 20, 2000. This table is provided below with some minor changes.

VI. Trip Generation for Total UGB Expansion (North and East Areas Combined)

Land Use (Intensity)	AM Peak Hour			PM Peak Hour		
	Total	Enter	Exit	Total	Enter	Exit
Single Family Residential (430 units)	323	81	242	434	278	156
Multi-Family Residential (107 units)	56	9	47	77	52	25
Specialty Retail (80.000 sq. ft. on 6.25 net acres)	-	-	-	145	62	83
Institutional-						
Community Center (15,000 sq. ft.)	20	13	7	26	9	17
Churches (2 x 500 members)	18	10	8	17	9	8
Private School (100 students)	92	55	37	20	8	12
Elementary School	87	51	36	30	8	22
City and State Park	3	7	1	3	1	2
Total:	**599**	**221**	**378**	**752**	**427**	**325**

In the *North Plains Trip Generation Analysis,* a total of 420 single family homes and 105 multi-family homes were estimated. Since the residential land use needs adopted by the North Plains City Council favors a slightly larger residential acreage, the table above indicates a slightly higher total of 430 single family homes and 107 multi-family homes.

With full build-out of both UGB expansion areas, a total of 599 trips are expected to be generated during the AM peak hour with 752 trips generated during the PM peak hour. Trip totals were then distributed to the North and East UGB expansion areas proportional to each area's land use needs.

When distributing and assigning North and East UGB expansion traffic to the local street network, it was assumed that 50 percent of all trips generated would travel to and from the town center. This assumption was made to account for balanced population and

employment growth in the city. All remaining traffic was assigned to the seven external roadways leading into and out of the city; Gordon Road/Mountaindale Road (northwest), Shadybrook Road (northeast), West Union Road (east), U.S. 26 (east and west), Glencoe Road (south), and Gordon Road (southwest). The distribution of UGB expansion traffic to and from these external locations was based on the existing traffic patterns observed in the traffic counts.

During the distribution phase, traffic from the East UGB expansion area was assigned to the Jackson School Road intersection, given its close proximity. Only a small percentage of the overall total was distributed to the interchange, considering the changes that are planned here in the near future. ODOT has committed to restricting several turn movements at the interchange as part of a safety improvement project. Only right-turn movements from and to US 26 westbound will be allowed at the north leg of Jackson School Road. All traffic heading to and from Hillsboro to the south, and from U.S. 26 eastbound were assigned to the Glencoe Road interchange.

5.01.50 Future Increases in Through Traffic

Two methods were devised to estimate future increases in through traffic at the 13 study area intersections in the North Plains area over the next 20 years. Based on a comparison of both methods, the most appropriate option was selected for this study.

Trending Forecast

In the first method, a trending forecast was prepared, where the existing through traffic determined for study area intersections was increased according to the projected 20-year growth rate of traffic on U.S. 26. An extensive history of traffic counts is available along U.S. 26 near the Glencoe Road interchange and it is believed that the historical growth trend in traffic along this highway could provide a solid indication of future growth trends in through traffic along the major roads in the North Plains area.

The first step in this process was to estimate the existing through traffic at the 13 study area intersections in North Plains. Using the traffic counts conducted at each intersection and the observed travel patterns of individual turn movements, the traffic entering and exiting at the seven external roadways around the city were disseminated into through traffic and local traffic. For example, the northbound right-turn volume from Glencoe Road to the US 26 eastbound on-ramp is entirely through traffic. A more complex example can also be given by defining how through traffic was extracted from the traffic volumes entering the study area along Shadybrook Road and exiting along Glencoe Road south of U.S. 26 interchange. Only the southbound traffic continuing straight through the intersection at Yorkshire Street contains through traffic. At the successive intersections of North Avenue, Commercial Avenue, Pacific Street, Highland Court, and the U.S. 26 ramp terminals, the travel patterns of individual movements observed at these intersections

provide a reasonable means to separate through traffic heading to Glencoe Road south from local area traffic.

Once existing through traffic volumes were established for the individual turn movements at all study area intersections, traffic volumes were then factored up based on the projected growth trend of traffic on U.S. 26. The following table illustrates how the highway growth trend was established.

Trending Analysis of Average Daily Traffic Volumes on U.S. Highway 26		
Year	0.20 Miles West Of Glencoe Road Interchange	0.30 Miles East Of Glencoe Road Interchange
1978	9,300	10,200
1980	8,600	10,600
1982	9,400	10.600
1984	11.200	14,500
1986	11,100	15,200
1988	12,150	17,000
1990	13.800	20,200
1992	14.000	21,000
1993	15,000	23,000
1996	17,400	24,800
Estimate for 2000	*18,300*	*28,400*
Estimate for 2020	*27,500*	*46,200*
20-Year Rate	**50.3%**	**62.7%**
Avg. Ann. Growth	**2.51%**	**3.13%**

Note : The ADT volumes shown are for both travel directions combined.

Source: ODOT's Trendline Analysis of US 26.

As shown in the previous table, the projected 20-year growth rate for U.S. 26 is higher just east of the Glencoe Road interchange and was calculated to be 62.7%. This would reflect a linear average annual growth of 3.13% for the forecast period. This growth rate was selected for the trending forecast since there is more traffic on the Glencoe Road interchange related to U.S. 26 East towards Portland. Selection of the higher growth rate would also yield a more conservative analysis of future traffic conditions. Use of the trending analysis also assumes the growth trends over the last 20 years will continue into the future.

One may question why the historical traffic counts along U.S. 26 were used to determine the future growth trend in through traffic instead of using historical counts along city streets in North Plains. The main reason is because there is only limited information available on the city streets, whereas the historical traffic counts obtained along U.S. 26 in North Plains represent more than 20 years of data collection.

An effort was made to obtain historical traffic counts at or near the external roadways in North Plains. Daily traffic counts were conducted by Washington County in the past, but the only information available was for the years 1995 and 1998. Two examples using the 1995 and 1998 data have been prepared to demonstrate how unrealistic it would be to use the Washington County traffic counts to establish through traffic growth trends for the city streets. Along West Union Road east of Glencoe Road, the 1995 ADT was measured to be 1,472 vehicles. In 1998 the ADT increased to 1,883 vpd. This represents an increase of 27.9% for only a three-year period. Extending this trend over a 20-year period would equate to a growth rate of 286%. Another site was tested along Glencoe Road, south of U.S. 26. In 1995 the ADT was measured to be 14,855 vpd. In 1998, the ADT increased to 19,065 vpd. This represents an increase of 28.3% in only three years. Extending this trend over a 20-year period would equate to a 289% increase. In both examples, the resulting growth rates seem extremely high. This is because they are based on traffic counts taken only over the past few years, during a time when the region was experiencing significant growth in economic activity. Such extreme values do not seem realistic when considering through traffic over a 20-year period. Perhaps if there was an extensive history of traffic counts along the city streets, a more logical 20-year growth trend could be established.

Washington County Regional Traffic Model

In the second test, data from the Washington County EMME/2 traffic model was used to assess future increases in through traffic along the major streets in North Plains. Traffic assignments were obtained for a base year 1994 and a future year 2020, including separate assignments showing total traffic and traffic only associated with the City of North Plains. The differences between total traffic and trips related to North Plains were assumed to represent the through traffic component. The projected increases in through traffic were calculated and adjustments were made to account for a PM peak hour condition and to determine the increases in traffic only for the 20-year planning period (2000 to 2020). Resulting increases in through traffic volumes were then tabulated for the external roadways around the city. It should be noted that the turn restrictions to be imposed at the Jackson School Road interchange with U.S. 26 were considered in the Washington County traffic model runs.

Results of Comparison

The following table was developed to directly compare the two methods tested.

Projected Increases in PM Peak Hour Through Traffic (Year 2000 - Year 2020)		
Location	Results of Highway Trending Analysis (In + Out)	Results From Washington County Traffic Model (In +Out) [1]
Northwest (Gordon Road)	+66	-2
North (Shadybrook Road)	109	NA[2]
East (West Union Road)		48
US 26 West	139	+63
US 26 East	+712	+4
South (Glencoe Road)	+448	+228
Southwest (Gordon Road)	+22	+26

Note: (1). The distribution of traffic varies between the 1994 and 2020 Washington County model assignments to reflect changes in driver behavior, increased congestion, changes to the street system, and other factors that may affect trip choices.
(2). Shadybrook Road is not included in the Washington County traffic model.

As shown in the table above, future increases in through traffic at the seven external roadways are consistently higher under the Highway Trending Analysis than what the Washington County Traffic Model projections indicate. Major differences are shown for two locations; US 26 East towards Portland and Glencoe Road South to Hillsboro. Under the Highway Trending Analysis, an additional 712 vehicles are expected to travel to and from the east towards Portland during the PM peak hour, where the Washington County traffic model only predicts 4 additional trips. The Highway Trending Analysis also indicates an additional 448 trips will be made to and from Hillsboro along Glencoe Road (south of the interchange), where the Washington County model predicts about half as much at 228 trips. One can only speculate as to why the differences are so dramatic at these two locations, since both forecasting methods are based on completely different sources of information. Inspection of the Washington County traffic model data seems to indicate that a transition will occur over the next 20 years, where the local traffic generated by future land use activities in North Plains will force through traffic to other locations outside the study area. This transition appears to affect the traffic projections shown for U.S. 26 East and Glencoe Road (South), where many drivers today use the interchange to travel between Hillsboro and Portland.

A decision was made to use the results of the Highway Trending Analysis for estimating future increases in through traffic in North Plains for several reasons. First, the trending analysis is based on actual through traffic trends, as established from the existing traffic counts. It is also unlikely that the Washington County traffic model was calibrated to accurately reflect the through traffic patterns which exist today along the major roadways in North Plains. Secondly, much of the through traffic traveling through North Plains is tied to U.S. 26. This can be observed in the existing traffic counts taken at the two intersections located at the U.S. 26 Glencoe Road interchange, where traffic volumes are at their highest levels. Thirdly, the future growth trend established along U.S. 26 in North Plains is based on more than 20 years of traffic count data, which provides a solid base for projecting future trends.

Selecting the more conservative results of the Highway Trending Analysis over the projections of the Washington County Traffic Model will also help to account for any traffic which may divert from the Jackson School Road interchange, when turn restrictions are imposed. (See next section on Committed Roadway Improvements).

5.01.60 Committed Roadway Improvements

The following committed improvement projects are scheduled to receive funding and eventually be constructed within the 20-year planning period. They were, therefore, considered in the analysis of future traffic conditions. In addition, since the completion of the original TSP, ODOT has moved forward with studies for the construction of an interchange for Jackson School Road at US 26. As a consequence, this TSP update includes a discussion of the most recent developments on this study.

5.01.62 Jackson School Road Interchange - As a temporary measure for improving traffic safety, ODOT completed an interim safety improvement project in December 2002. The interim safety improvement project converted the intersection so that it is now restricted to right turn movements from Jackson School Road and the Sunset Highway (US 26). The westbound left turn movement from Sunset Highway is still maintained.

Even with the safety improvements completed, there are still a number of safety issues as the intersection remains at grade. The turning prohibitions make travel more inconvenient for local traffic. The proposed Jackson School Road interchange project is intended to provide more permanent, effective improvements to this intersection.

The primary purpose of the project is to improve safety. The intersection has been the site of numerous accidents. According to the Traffic Analysis Report for this project conducted by ODOT and David Evans and Associates (DBA), over the five-year period between 1997

and 2001, 43 crashes were reported at the intersection. Of those, 12 resulted in intermediate severity injuries, one resulted in major severity injuries and one in a fatality.

A number of potential project design alternatives had been evaluated. To ensure that the selected alternative would best meet the needs of all affected parties, ODOT held work sessions with local residents, community organizations, Washington County staff, 1000 Friends of Oregon, and other state agencies.

Under the Build Alternative, a full access grade-separated diamond interchange would be constructed with the proposed project to replace the existing at-grade intersection of Sunset Highway and Jackson School Road. The proposed project is anticipated to be completed by 2006.

With the proposed project, the new Jackson School Road overpass would have a typical cross section that includes two 14-feet through lanes, two side by side 14-feet left turn lanes, and 12-foot shoulders (including 2 feet shy distance to the bridge rails). The interchange would be designed to meet ODOT requirements for a rural interchange. The interchange ramps would be designed to meet current standards for safe merging and diverging operations on Sunset Highway. A ramp meter will be provided on the eastbound entrance ramp to regulate the amount of traffic entering the freeway during the AM and PM peak hours. Figure 4 of the Traffic Analysis Report prepared for the Interchange Area Management Plan is included as an attachment to this section of the revisions to the City's TSP.

The proposed Build Alternative was selected as the preferred alternative that best met the identified project objectives. The Traffic Analysis Report developed by ODOT and DEA responded to key traffic questions and concerns identified which included the following:

- Will the interchange operate at acceptable level-of-service conditions?
- Will there be any traffic queuing issues along Jackson School Road?
- Will there be adequate gaps in traffic to allow for passenger vehicles and larger size vehicles (such as farm equipment) on side streets and driveways to enter Jackson School Road?
- Will improved operations at the Jackson School Road interchange attract traffic currently traveling on adjacent parallel roadways such as Glencoe Road and Shute Road to use Jackson School road instead to access Sunset Highway?
- Will the project require any modifications to existing access points (side streets and driveways)? Will there be any issues concerning travel speeds on Jackson School Road?
- How will the proposed interchange improvements affect traffic safety?
- How would a traffic signal at the westbound ramp intersection affect travel speeds and traffic gap sizes?

The Traffic Analysis Report primarily focused within a study area bounded by Glencoe Road to the west, West Union Road to the north, Shute Road to the east, and Evergreen Road to the South. Most of the traffic analysis was focused on the traffic operations at the proposed Sunset Highway at Jackson School Road interchange. The analysis included the proposed 78-acre urban growth boundary addition located southeast of the present North Plains city limits.

A key concern among local residents was whether the proposed improvements would attract traffic currently traveling on adjacent parallel roadways, in particular the adjacent Glencoe Road and Shute Road, to instead travel on Jackson School Road to access Sunset Highway. Issues such as increased congestion along the roadway and not enough gaps to allow for side street and driveway vehicles to access Jackson School Road could potentially arise should a large amount of traffic divert to Jackson School Road.

According to the Traffic Analysis Report, a comparison of the existing 2002 two-way traffic volumes with those predicted for the year 2025 suggest that there would most likely be a considerable increase of traffic along Jackson School Road in the future. This anticipated increase is due mainly to additional commuter and business trips generated by the planned urban growth boundary expansion and from drive-through commuter trips heading to and from Hillsboro and North Plains.

When comparing the 2025 No Build with the Build Alternative traffic volumes listed in the Traffic Analysis Report, it indicates that very little traffic would divert to Jackson School Road as a result of the new interchange. Factors that would discourage drivers from diverting to Jackson School Road include the eastbound ramp meter proposed at the new interchange, which would limit how quickly traffic can access the freeway via the interchange, and the out-of-direction travel, by the motorists. It is anticipated that only approximately 2,000 vehicles total per day would divert to Jackson School Road as a result of the proposed interchange. During the peak traffic hour, there would be only approximately 100 vehicles more with the proposed interchange improvements. These small volumes would not create significant impacts to Jackson School Road.

5.01.64 Glencoe Road Interchange - On April 6, 2004, the Oregon Freight Advisory Committee (FAC) submitted a report to the Oregon Transportation Commission with recommendations for high priority freight mobility projects on Oregon's highways and local roads. The FAC reported these recommendations pursuant to the direction in House Bill 3364 from the 2001 Oregon Legislature and House Bill 2041 from the 2003 Oregon Legislature

House Bill 3364 included a number of provisions, including Section 3, part 3(f): *Advise the commission and regionally based advisory groups about the Statewide Transportation*

Improvement Program and the program's consideration and inclusion of highest priority multimodal freight mobility projects in each Department of Transportation region.

House Bill 2041 provided additional direction regarding the definition of freight mobility projects and giving priority to such projects in developing the STIP. The bill in Section 37 defines a freight mobility project as "a project that supports the safe, reliable and efficient movement of goods between and among local, national and international markets." Section 37 also states the following:

In developing the STIP, the Department of Transportation shall give priority to freight mobility projects that:

a) Are located on identified freight routes of statewide or regional significance;
b) Remove identified barriers to the safe, reliable and efficient movement of goods; and
c) Facilitate public and private investment that creates or sustains jobs.

The culmination of the FAC two-year effort is a list of 56 projects categorized in three tiers. The first tier of highest priority projects consists of 14 projects associated primarily with the National Highway System (NHS) intermodal connectors, industrial opportunity sites, and/or other industrial lands that could become important for creating or sustaining jobs and improving Oregon's economy. The FAC recommends this list for consideration for funding from bonding authorized by HB 2041, Section 11.

The second tier consists of 16 projects of lower priority but still important for freight mobility. Most of these projects are on Oregon's interstate or other major highways, NHS intermodal connectors, or local or regionally designated city or county roads important for freight mobility. The third tier consists of 26 projects which are important for people and goods movement and which could rank higher in future efforts to rank freight mobility projects. The FAC recommended that projects in Tiers 2 and 3 along with projects in Tier 1, be favorably considered for the 2006-2009 STIP subject to the available funding sources.

Appendix 1 of the FAC report relates the freight mobility project Eligibility Criteria and Prioritization Factors. Appendix 2 of the report shows the recommendations for Highest Priority Freight Mobility Projects on Oregon's Highways and Local Roads. Both appendices are included as an attachment to this update of the City of North Plains TSP.

The Glencoe Road interchange at US 26 project is included in Tier 2 of the list of priorities from the FAC report. It indicates that the project would consist of constructing a new interchange at a cost of $14 million. The project would address sight distance deficiencies, inadequate horizontal clearance on the overpass, and inadequate turning radii for trucks. Existing peak hour level of service is F at both ramp terminals. Scheduled STIP projects to improve movements at ramps will help but the interchange, which was built in 1958, is becoming increasingly inadequate to meet future capacity needs.

For purposes of the update of this TSP, the City has included the original project for improvements at the Glencoe Road interchange under the Funding Chapter of the TSP. Until such a time as the funding for the new interchange becomes certain, the City will then modify the priority of funding projects included in Table 7-9 of Chapter 7.

5.01.70 Future Peak Hour Traffic Volumes

Future AM and PM peak hour traffic volumes for the year 2020 were determined by adding the assigned traffic volumes from approved developments and planned land use activities, including additional through traffic, to existing traffic counts. The resulting traffic forecast for individual turn movements at the 13 study area intersections is attached as an appendix.

As a check for consistency, forecasted traffic growth for the city was compared with population and employment growth projections and summarized in the following table.

Comparison Between Forecast Traffic Growth and Population And Employment Growth

	Year 2000	Year 2020	20-Year Growth Rate
AM Peak Hour Traffic Volumes[1]	6.158	12.639	105.2%
PM Peak Hour Traffic Volumes[1]	7,108	14,682	106.5%
Population	1,780	3,754	110.9%
Non-Agr. Empl.	774	1 .625	109.9%

Note: (1). The traffic volumes shown reflect the total traffic volumes entering all study area intersections during the peak hour.

As shown in the above table, AM and PM peak traffic volumes are projected to grow at slightly lower rates (105.2% and 106.5%) than the projected population and non-agricultural employment growth rates (110.9% and 109.9%). This difference is considered to be minor.

It should be noted that with redevelopment and infill potential a total of 976 units of housing can be accommodated within the city limits. With full buildout of the North and East UGB expansion areas, a total of 537 housing units are projected. The combined total of 1,513 housing units translates into a population of 3,782, which is just over the future population projection of 3,750 residents. This overestimate of 32 residents will have no measurable impact on the future traffic volume projections and identified deficiencies of this study.

5.01.80 Future Peak Hour Operations

Future traffic operations at the 13 study area intersections are shown in the following table.

2020 Future Conditions Level of Service Summary

		AM Peak Hour		PM Peak Hour	
Intersection	**Control Type[1]**	**Delay (sec/veh)[2]**	**LOS**	**Delay (sec/veh) [2]**	**LOS[3]**
U.S. 26 EB Ramps/Glencoe Road [4 5]	Signal	126%	F	104%	F
U.S. 26 WB Ramps/Glencoe Road [5]	Signal	106%	F	137%	F
Highland Court/Glencoe Road	TWSC	>50.0	F	>50.0	F
Pacific Street/Glencoe Road	TWSC	17.2	C	>50.0	F
Commercial Avenue/Glencoe Road	AWSC	>50.0	F	>50.0	F
North Avenue/Glencoe Road/Shady Brook Rd	TWSC	29.0	D	23.8	C
Pacific Street/Main Street	TWSC	8.8	A	9.0	A
Commercial Avenue/Main Street	TWSC	16.0	C	32.0	D
North Avenue/Main Street	TWSC	18.2	C	16.3	C
Commercial Avenue/Gordon Road	TWSC	9.7	A	10.2	A
North Avenue/Gordon Road	TWSC	9.5	A	9.6	A
Shady Brook Rd/Yorkshire St	TWSC	9.4	A	11.0	B
North Avenue/309th Street	TWSC	12.8	B	13.0	B

Notes:

1. AWSC = All way stop controlled intersection. TWSC = Two way stop controlled intersection, Signal = Signalized intersection
2. Control delay, measured in seconds per vehicle, is a measure of all the delay contributable to traffic control measures, such as stop signs. At AWSC intersections, the delay reported is the average of the control delay experienced for all the movements. At TWSC intersections, the reported delay is for only one movement, the movement experiencing the worst control delay, which is typically one of the stop-controlled side street approaches. The control delay reported for TWSC intersections is not a valid indication of the operations at the entire intersection.
3. LOS is the level of service; a concept based on the 1997 Highway Capacity Manual for unsignalized and signalized intersections.
4. According to the Draft 2002-2005 STIP, this intersection will be modified in 2005 to establish free-flowing right turn movements onto the eastbound on-ramp from a new right-turn lane on the south approach of Glencoe Road. A traffic signal is also planned.
5. LOS is based on calculations performed by Sigcap 2. LOS is not based on delay but on the critical Volume/Capacity ratio. The critical V/C ratio is referred to as saturation value in the Sigcap 2 program and is expressed as a percentage.

A total of five intersections are projected to fail in year 2020 during one or both peak hours. Traffic operations are expected to be the worst at the ramp terminals of the U.S. 26/Glencoe

Road interchange, where traffic demand is expected to exceed capacity at both intersections during the AM and PM peak hours. This is true even with the planned traffic signal and geometric improvements at the eastbound ramp terminal.

Other intersections along Glencoe Road are projected to function at unacceptable levels, including Highland Court, Pacific Street, and Commercial Avenue. Adverse operating conditions are expected mainly on the side street approaches of Highland Court and Pacific Street, where stop signs are posted. All approaches of the AWSC intersection of Glencoe Road at Commercial Avenue are expected to function at unacceptable levels. The remaining intersections in the study area are expected to function adequately at LOS D or better.

5.01.90 Alternatives to Mitigate Deficiencies

Potential solutions to the future deficiencies identified in the traffic forecast will be addressed later in the TSP process, when roadway improvement alternatives are evaluated. A list of possible solutions to investigate include:

- Replace the interchange at U.S. 26 and Glencoe Road,
- Add turn lanes at intersections,
- Transition from two-way Stop-Controlled to All-Way Stop-Controlled,
- Improve traffic control by installing a traffic signal or a roundabout.

5.02.00 POPULATION AND EMPLOYMENT FORECASTS

This section presents population and employment forecasts for Washington County and the City of North Plains. It briefly discusses historical population growth trends, the methodology for developing population forecasts, and the future population and employment trends estimated through the year 2020.

5.02.10 Methodology and Data Sources

Information used in this demographic analysis was gathered from a variety of sources. Historic population figures (1960-1990) were reported by the U.S. Bureau of the Census. Population estimates for 2000 were provided by Portland State University's Center for Population Research and Census (PSU CPRC), which develops establishes population estimates for cities and counties for allocating certain state tax revenues.

Population and employment projections for the State and Washington County used in this analysis are based on those developed by the State of Oregon Office of Economic Analysis (OEA) in January 1997. The OEA's projections include long-term (through year 2040) state

population forecasts disaggregated by county. Employment information was developed from OEA's county-level employment forecasts (also completed in January 1997), which were based on covered employment payrolls reported by the Oregon Employment Department.
The OEA used business-cycle trends (as reflected by the Employment Department's employment forecasts) as the primary driver of population and employment for the short-term projections. Long-term forecasts shifted to a population-driven model, which emphasized demographics of the resident population, including age and gender of the population, with assumptions regarding life expectancy, fertility rate, and immigration.

The City of North Plains provided its population and employment projections through 2020. After extensive discussions, the North Plains city council and Washington County approved North Plains' projections as part of their ongoing Comprehensive Plan periodic review process.

David Evans & Associates, Inc. (DEA) developed population and employment forecasts presented in this memorandum to determine future transportation needs. The amount of growth, and where it occurs, will affect traffic and transportation facilities in the study area. This report is not intended to provide a complete economic forecast or housing analysis, and it should not be used for any purpose other than that for which it is designed.

5.01.20 Historic Growth

The Portland metropolitan area has grown considerably in the past 30 years, which has changed many rural communities from quiet hamlets to bedroom communities for the metropolitan area. The city of North Plains is no exception. The city's population grew by 44 percent between 1970 and 1990, but witnessed even higher rates between 1990 and 2000 when the City grew by 79 percent in only ten years. This is significantly higher than Washington County at 37 percent and the state at just over 20 percent for the same ten-year period. As people move from Portland and abroad looking for a rural environment like that in North Plains, the city's residents have seen their community change dramatically. **Table 1** outlines growth in North Plains, Washington County, and the State of Oregon.

Table 1
Population Growth in North Plains, Washington County, and the State of Oregon
1960 to 2000

	1960	1970	1980	1990	2000	Number (1960-2000)	AAGR[2] 1960-2000[3]	AAGR[2] 1990-2000
North Plains	N/A[1]	690	715	997	1,780	1,090	3.21%	5.97%
Washington County	92,237	157,920	245,808	311,554	427,500	335,263	3.91%	3.21%
State of Oregon	1,768,687	2,091,385	2.633,105	2,842,321	3,421,399	1,652,712	1.66%	1.87%

[1] *The City of North Plains was incorporated in 1963. 1970 is the first U.S. Census Data available.*
[2] *Average Annual Growth Rate.*
[3] *The average annual growth rate for North Plains is calculated from 1970-2000*
Source: Portland State University Center for Population Research and Census (1990-2000 data); U.S. Bureau of the Census (city, county, and state historic population data)

Although North Plains has a slightly lower long-term growth rate (1970-2000) than Washington County, the city has grown quickly in the last ten years at about 1.9 times the rate of the county and 3.2 times the state's growth rate. North Plains' population has surged in the last 10 years, and projections indicate that higher growth than in the past will continue for the next 20 years, keeping North Plains' population increasing at a faster rate than the county and the state.

5.02.30 Population and Employment Forecasts

The population forecasts suggests significant growth in the next 20 years in North Plains, although at a slower rate than the 5.97 percent average annual growth rate experienced between 1990 and 2000. Population projections were furnished by the City and are the same data currently in use to update the North Plains Comprehensive Plan. North Plains planning staff indicated that the projections are based on discussions with Washington County and Metro staff, and from a study done by OTAK of neighboring cities similar to North Plains.[2] The *North Plains Neighbor City Study* projects the city's average annual growth rate at 4.6 percent between 2115 and 2020. Alternatively, if the existing population, currently at 1,780, is used as a starting point and the North Plains 2020 Comprehensive Plan projection of 3,754 as the end point, the average annual growth rate is 3.8 percent for the 20-year period (see **Table 2**). North Plains is expected to continue growing faster than both Washington County and the state of Oregon and also faster than it has in the past 30 years.

Table 2
Population and Employment Forecast, 2000 to Year 2020
North Plains, Washington County and State of Oregon

						2000-2020 Change	
						VII. Number	
	2000	2005	2010	2015	2020		AAGR*
North Plains							
Population	1,780	2,186	2,593	3,000	3,754	1,974	3.80%
Non-Agr. Empl.	774	950	1,127	1,418	1,625	851	3.78%
Washington County							
Population	427,500	467.233	510,564	554,945	598,800	171,300	1.70%
Non-Agr. Empl.	210,080	234,936	256,494	274,113	290,692	80,612	1.64%
State of Oregon							
Population	3,421,399	3.631,000	3,857,000	4,091,000	4,326,000	904,601	1.18%
Empl.	1,608,700	1,718,659	1,814,276	1,882,653	1,947,702	339,002	0.96%

* Average annual growth rate

Sources:: Portland State University Center for Population Research and Census (1997 population estimates); State Of Oregon Office of Economic Analysis (county and state forecasts);City of North Plains Planning Department

[2] *North Plains Neighbor City Study* prepared by OTAK in August 1997. It evaluates different growth options for North Plains by comparing it to similar cities near Portland. The cities included Canby, Newberg. Sandy, and Woodburn. The study also projects populations and employment growth rates through 2040.

In addition to population forecasts, the City of North Plains also furnished employment projections through 2020, although, there was no disaggregation by type of employment. For this analysis, DEA assumed that total employment is equal to non-agricultural employment because the City's planning staff indicated that the city limits are the same as the urban growth boundary (UGB), so very little, if any, farming or other agricultural employment happens inside the UGB.

The City of North Plains expects its employment to grow at a similar rate to its population, with average annual growth rates of 3.78 percent (a 109.9 percent increase) and 3.80 percent (a 110.8 percent increase) respectively. Washington County's non-agricultural employment is projected to grow by 1.64% (a 38.3 percent increase); county population is projected to grow at a rate of 1.70 percent (a 40.1 percent increase) in the next 20 years. Both the city and county are similar in that the population and employment growth projections are proportional, however, North Plains' population and employment are

projected to grow at more than twice the rate of the county and over three times that of the state as a whole.

5.03.00 FUNCTIONAL CLASSIFICATION AND STREET DESIGN

Streets should be classified according to their function. Such classification provides for consistency in construction, operation and maintenance standards for each separate classification. Street classification also promotes an understanding by the public of the importance of specific facilities, and their associated improvements within the system.

The TPR also requires cities to classify streets according to their function. The classifications must be consistent with State and regional transportation plans for continuity among adjacent or overlapping jurisdictions, and must be based on each street's actual use. The functional classification hierarchy of streets provides:

- Grouping of streets by the service they provide
- Facility definitions to handle different desired levels of access and mobility
- An understanding of how a street is being used
- Guidelines on how streets are to be designed

Roadways provide two functions: mobility and access. From a design perspective, these functions can be compatible; high or continuous speeds are desirable for mobility, while low speeds are more desirable for access. The logical spacing of a grid arterial and collector street system allows traffic to access all areas of the City without diverting excessive traffic through local streets. Non-local traffic intrusion is greatest on neighborhood streets where such spacing has not been achieved. Local streets within the grid can follow any pattern that does not promote through traffic.

The current roadway classification plan has been previously described in the Existing Conditions Section of this plan. Through the analysis of the future travel needs of the City and development of alternatives transportation system plans to meet these needs, it became evident that some modifications to the existing functional classification plan would be required. These changes are made in recognition of anticipated future land development and the resulting traffic volumes within the City of North Plains. Changes to the City's current roadway standard policy are listed first and shown in Table 3. Functional classification standard changes on individual streets are listed second, by functional classification. Truck travel should be restricted to collector and arterial streets.

5.04.00 POLICY CHANGES

1. Arterial: Rename current "major collector" classification standard to "arterial." Design Criteria: Five-foot sidewalks, six-foot bike lanes, and two twelve-foot travel lanes with a twelve-foot median where applicable. In commercial areas sidewalks preferred from curb to property line. The following roads should be classified as Arterial in the City of North Plains:

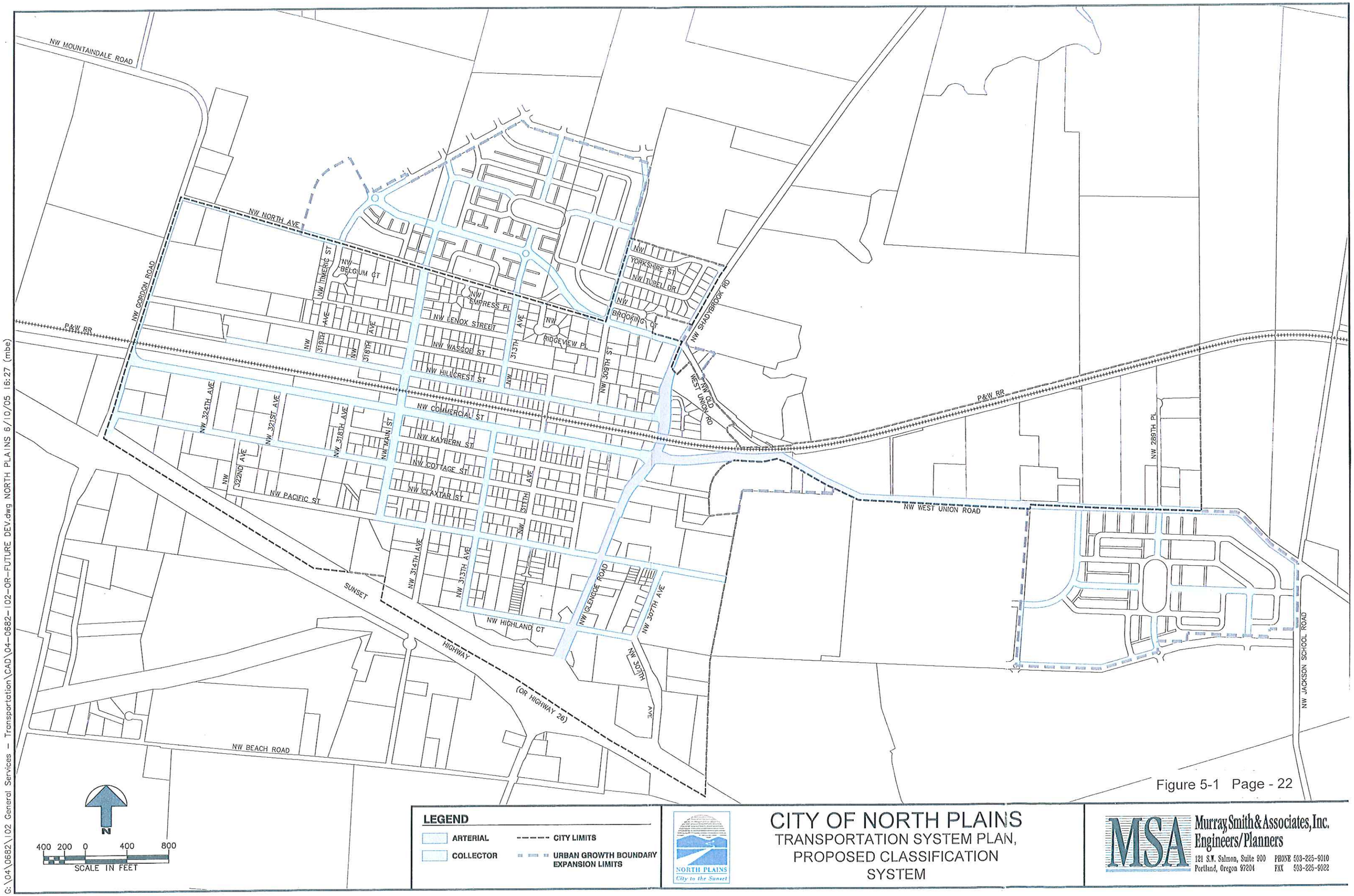
   - Glencoe Road
   - West Union Road

2. Collector: Rename current "minor collector" classification standard to "collector."' This classification standard is characterized by a two-lane roadway section, five-foot sidewalks, and six-foot bike lanes and with adequate right-of-way and street width at major intersections to accommodate traffic volumes at acceptable levels of service. Access restrictions to be less than arterial, but more restrictive than local streets. Signalization at intersections with major arterials and collector streets as warranted. Add 8 feet for parking if allowed and no parking is suggested within 100 feet of curb return. The following roads should be classified as Collectors within the City:

   - North Avenue
   - Gordon Road
   - Commercial Street
   - Main Street
   - Hillcrest
   - Pacific Street - Main to east end
   - 307th Avenue
   - Highland Court
   - 313th Avenue
   - Cottage - Main to Gordon Rd.

3. Local: Include curbs and sidewalks. Add five feet for sidewalks along local streets. All roads not classified as arterial or collector should be considered local streets.

Figure 5-1 illustrates this proposed classification system for the City of North Plains.



CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN, PROPOSED CLASSIFICATION SYSTEM

MSA Murray, Smith & Associates, Inc. Engineers/Planners
121 S.W. Salmon, Suite 900 Portland, Oregon 97204
PHONE 503-225-9010 FAX 503-225-9022

G:\04\0682\102 General Services – Transportation\CAD\04-0682-102-OR-FUTURE DEV.dwg NORTH PLAINS 6/10/05 16:27 (mbe)

5.05.00 ROADWAY DESIGN STANDARDS

Roadway design standards are based upon the function and operational characteristics of streets such as travel volume, capacity, operating speed and safety. The City of North Plains existing standards for design and classification of public streets, summarized in the Existing Conditions section of this plan, were defined and implemented to provide for a system of streets to safely and efficiently serve the traveling public.

The roadway design standards consist of the following parameters:

- Typical Roadway Section
- Alignment and Operational Characteristics
- Access Management

5.05.10 Typical Roadway Section

The typical roadway section includes all of the following components: right-of-way, number of vehicle travel lanes, bicycle/pedestrian facilities, drainage system and other public amenities. The specific parameters of the typical roadway section components will vary depending upon the functional classification of the street. Figures 5-2a through 5-2p (pages 24 - 39) illustrates the typical roadway sections for each of the functional classifications.

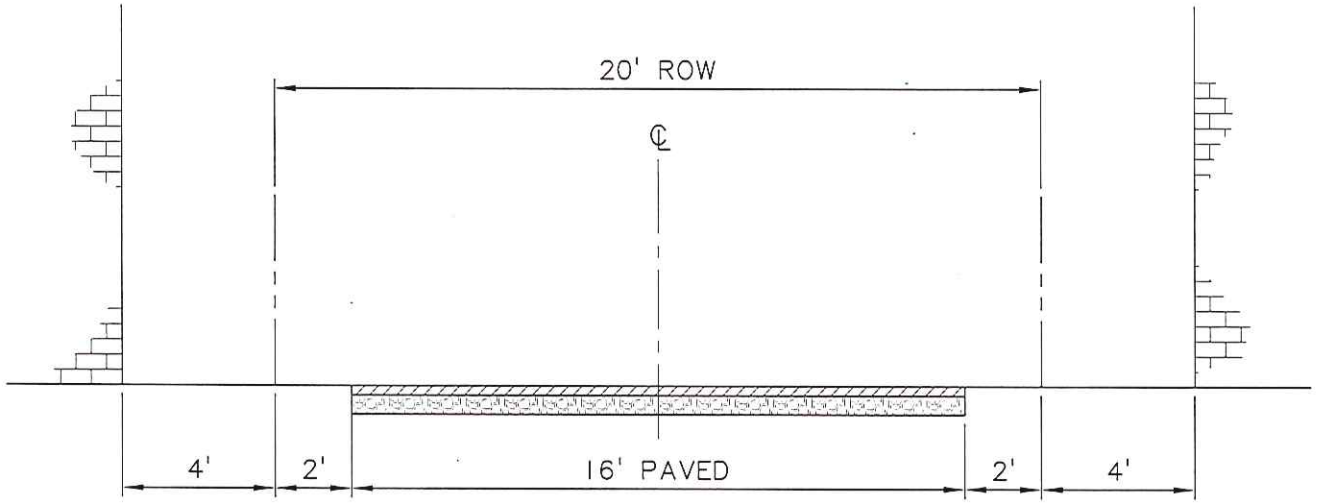
5.05.20 Alignment and Operational Characteristics

The safety and efficiency of travel on the City's roadways will be highly affected by the alignment and operational characteristics. The alignment and operational characteristics include the design and operating speed, horizontal and vertical curvature, lane usage, and parking usage.

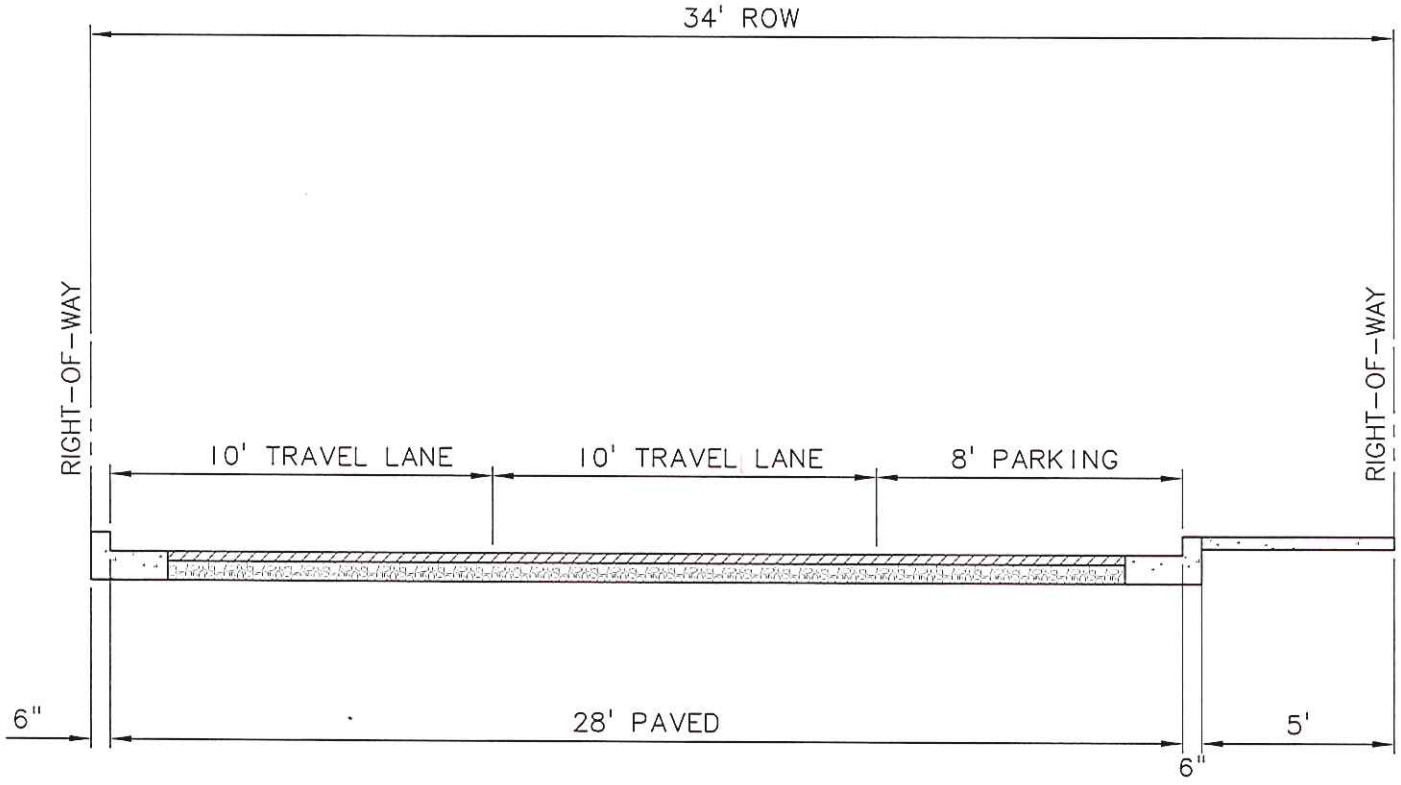
5.05.30 Access Management

As the North Plains urban area continues to develop the City's collector and arterial street system will become more heavily used and relied upon for a variety of travel needs. As such, it will become increasingly important to manage access on the existing and future collector/arterial street system as new development occurs. Experience throughout the United States has shown that a well managed access plan for a street system can: 1) minimize the number of potential conflicts between all users of the street system, and as a consequence provide for safer and more efficient traffic operations; and 2) minimize local cost for transportation improvements needed to provide additional capacity and/or access improvements along unmanaged roadways.

Figure 5-3 (page 40) illustrates the relationship between the function of land use access control, travel movement, and the types of roadways best serving each. In general, local streets serve local access needs and carry primarily local traffic at lower speeds. Conversely, freeways operate best at higher speeds, serving non-local traffic under full access control.



MSA Murray, Smith & Associates, Inc. Engineers/Planners Portland, Oregon	CITY OF NORTH PLAINS ALLEY 20' RIGHT-OF-WAY ROAD SECTION	SCALE: NTS	FIGURE: 5-2a
		DATE: 11/05	PAGE: 24



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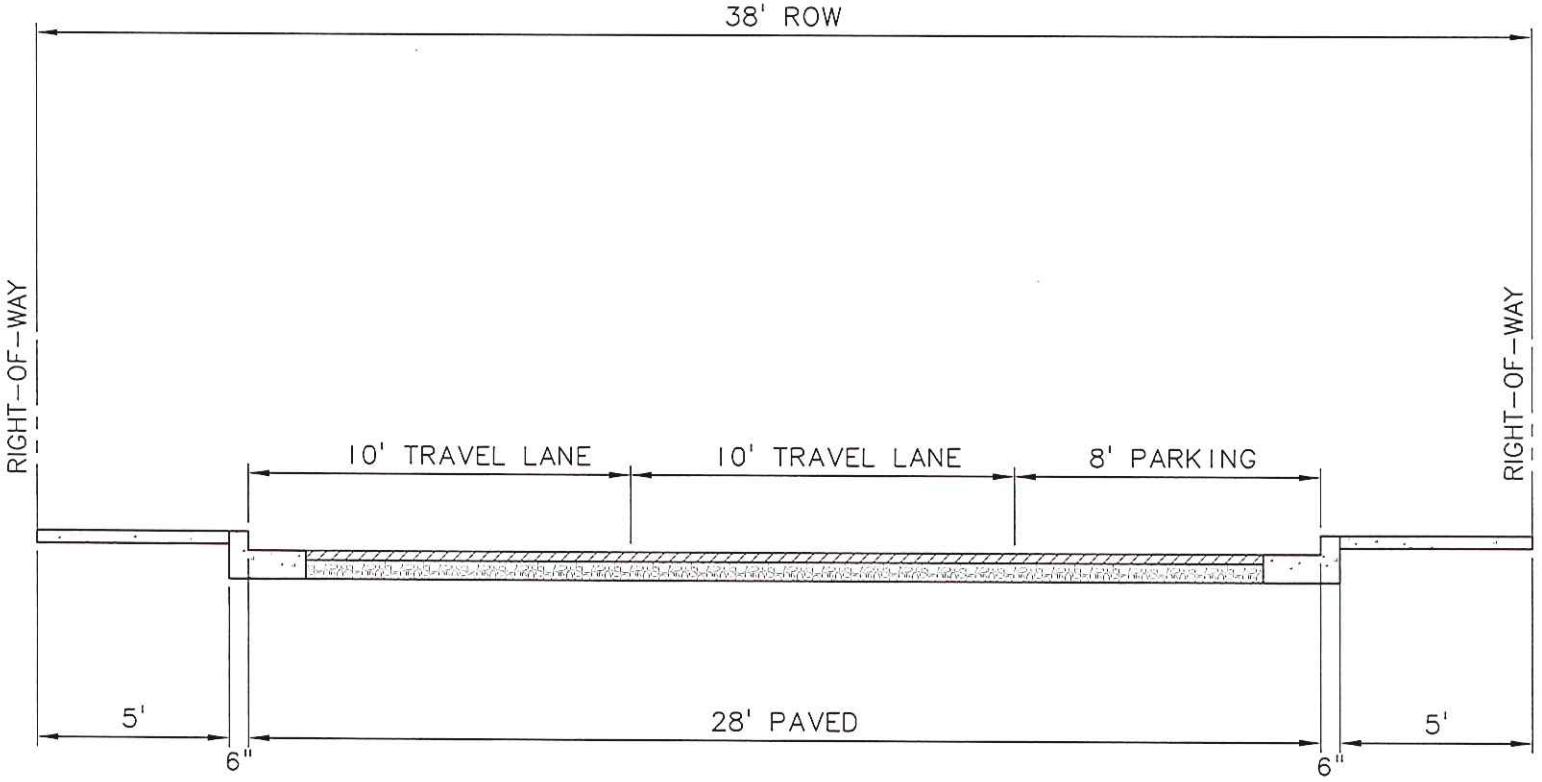
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

LOCAL 34' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2b
DATE: 11/05	PAGE: 25



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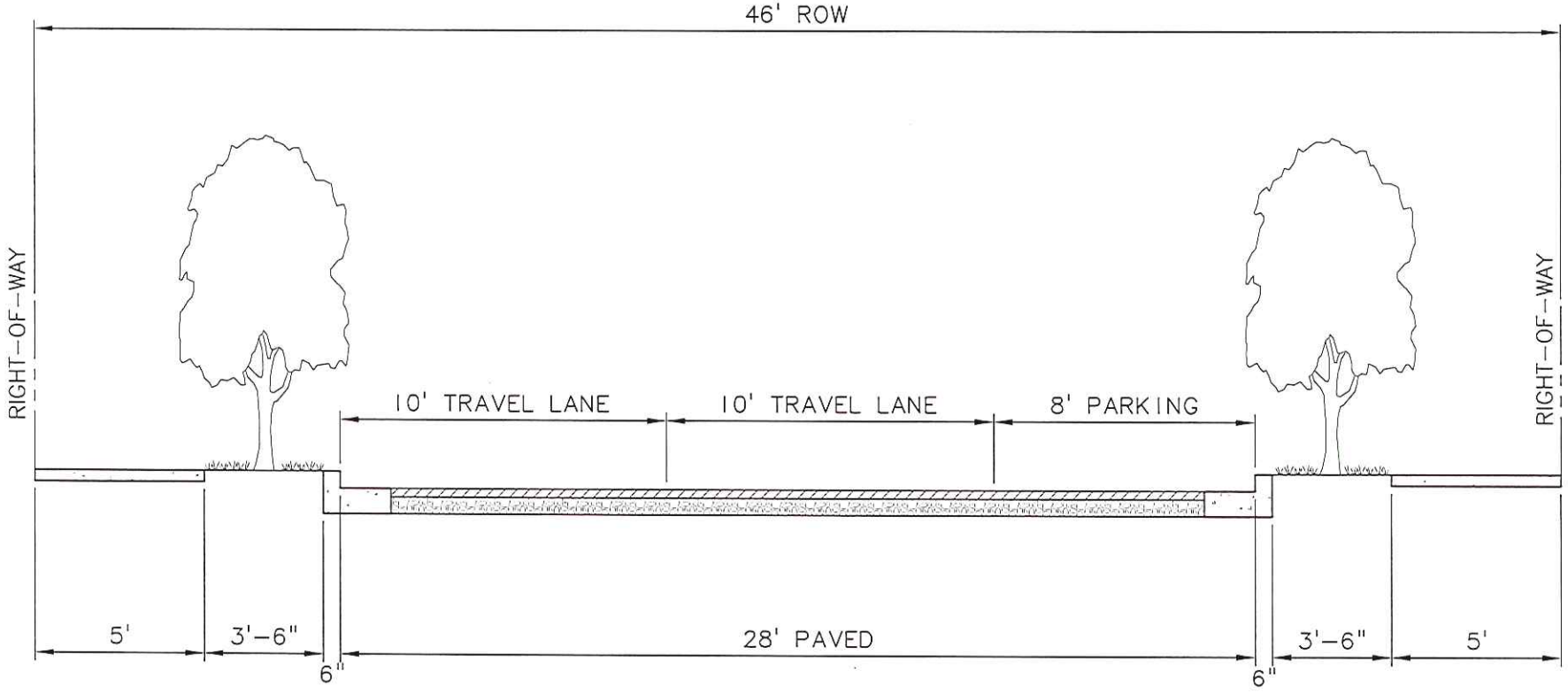
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

LOCAL 38' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2c
DATE: 11/05	PAGE: 26



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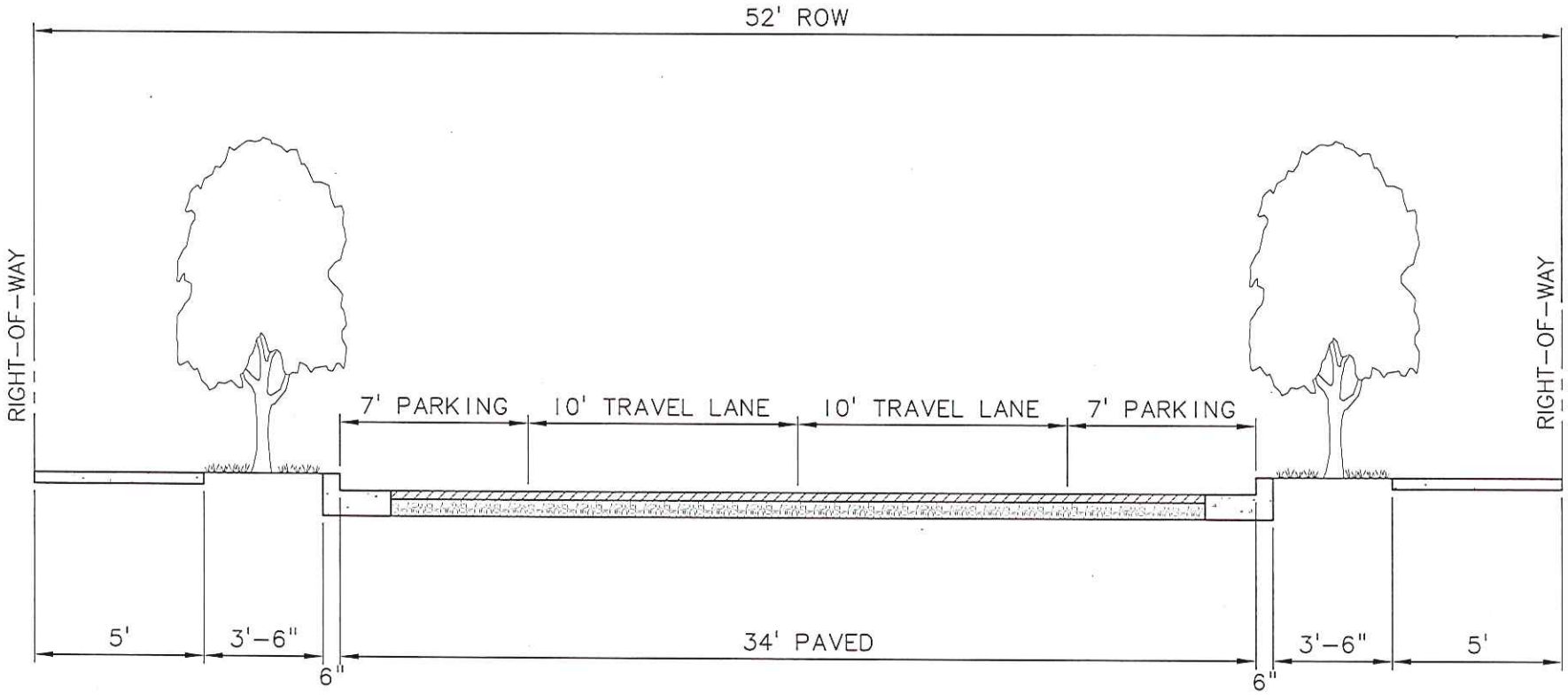
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

LOCAL 46' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2d
DATE: 11/05	PAGE: 27



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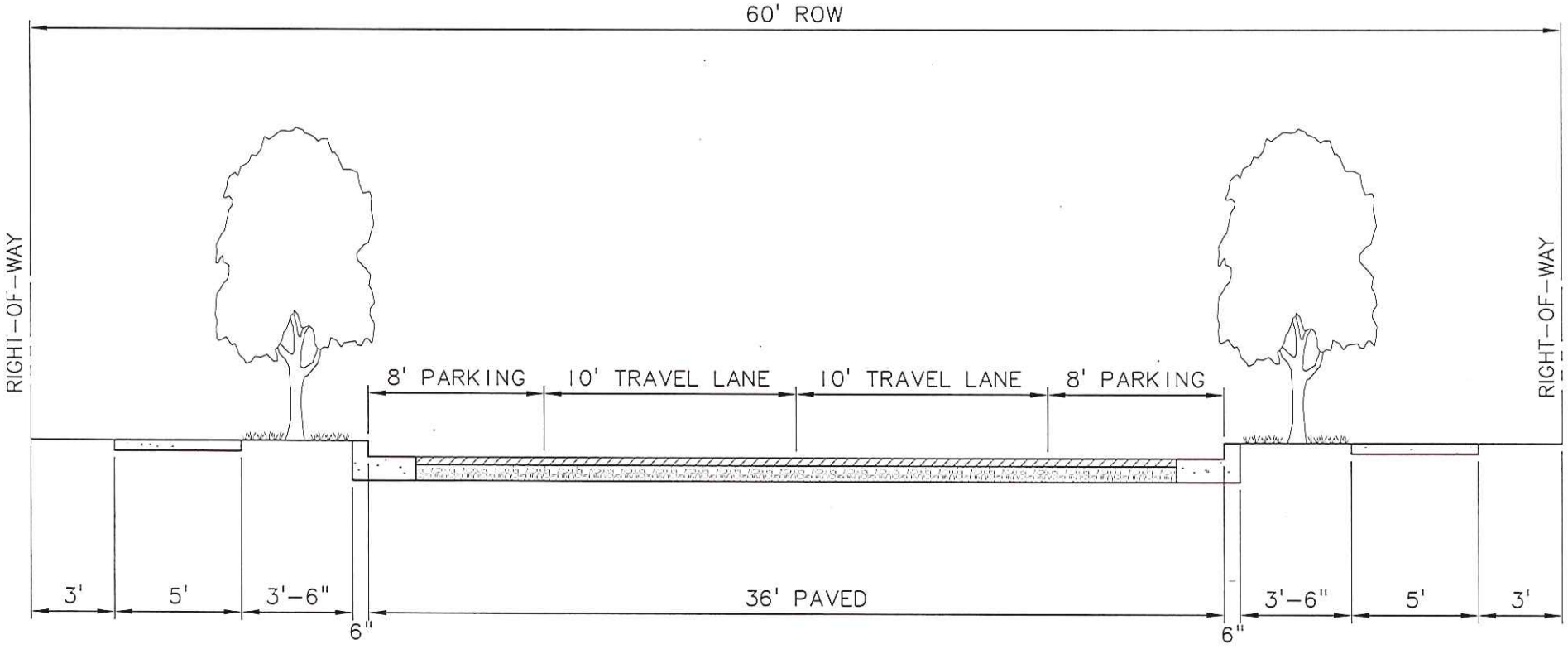
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

LOCAL 52' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2e
DATE: 11/05	PAGE: 28



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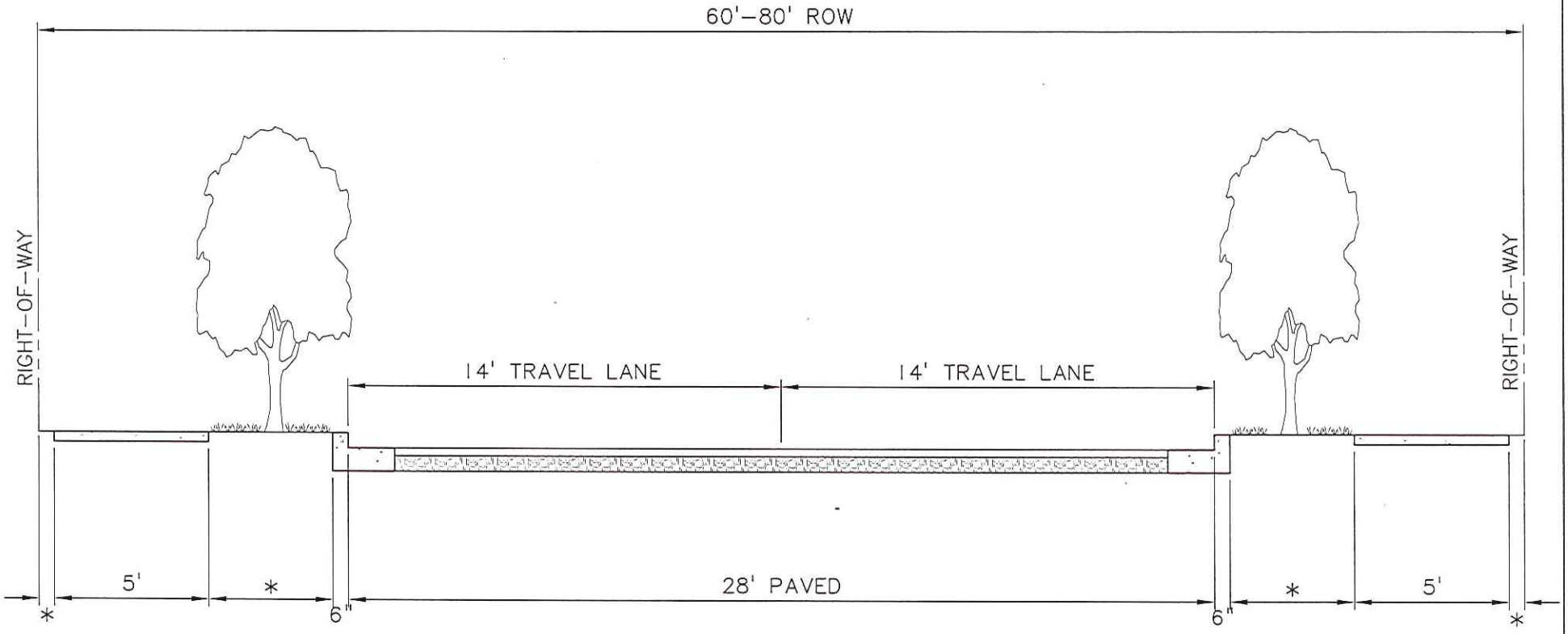
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

LOCAL EXISTING 60' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2f
DATE: 11/05	PAGE: 29



NOTE: TRAVEL LANES ARE SHARED BICYCLE AND MOTOR VEHICLE LANES.

* DIMENSION VARIES WITH RIGHT–OF–WAY

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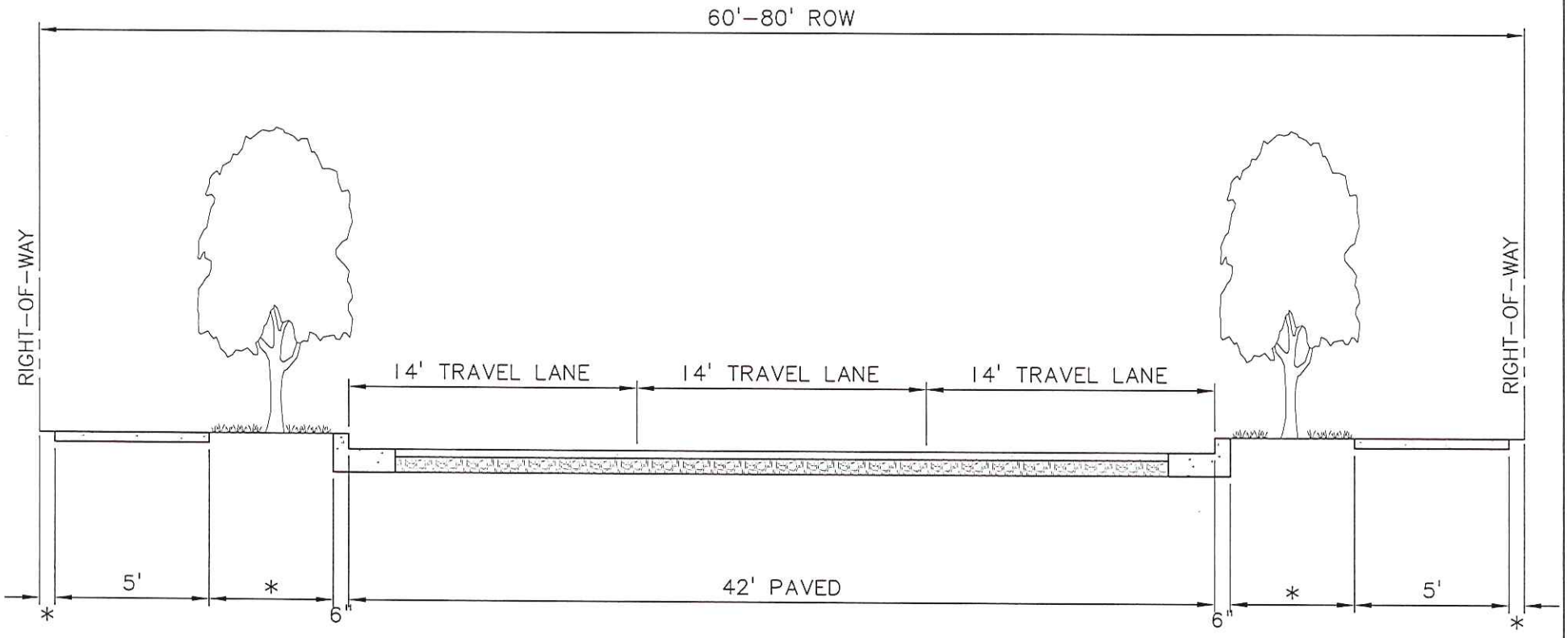
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

COLLECTOR (RESIDENTIAL)
60'-80' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2g
DATE: 11/05	PAGE: 30



NOTE: OUTSIDE TRAVEL LANES ARE SHARED BICYCLE AND MOTOR VEHICLE LANES.

* DIMENSION VARIES WITH RIGHT–OF–WAY

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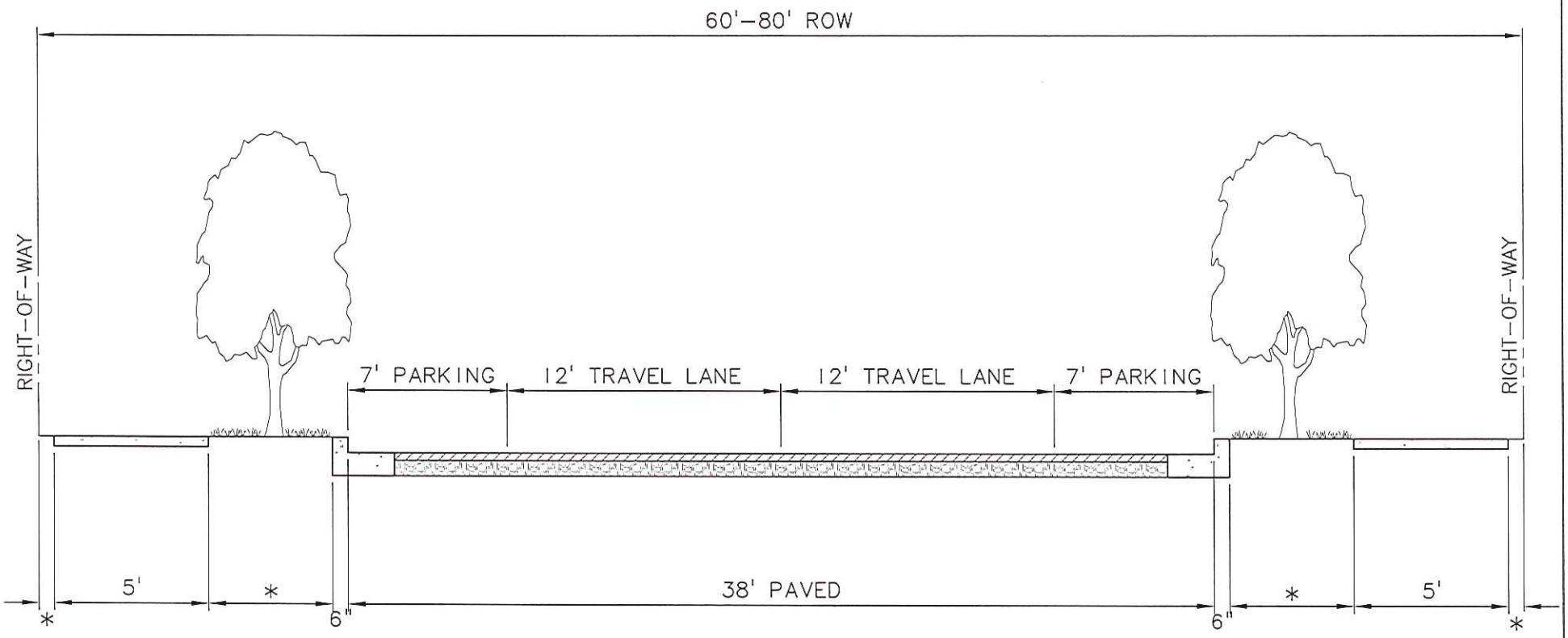
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

COLLECTOR (COMMERCIAL)
60'-80' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2h
DATE: 11/05	PAGE: 31



* DIMENSION VARIES WITH RIGHT–OF–WAY

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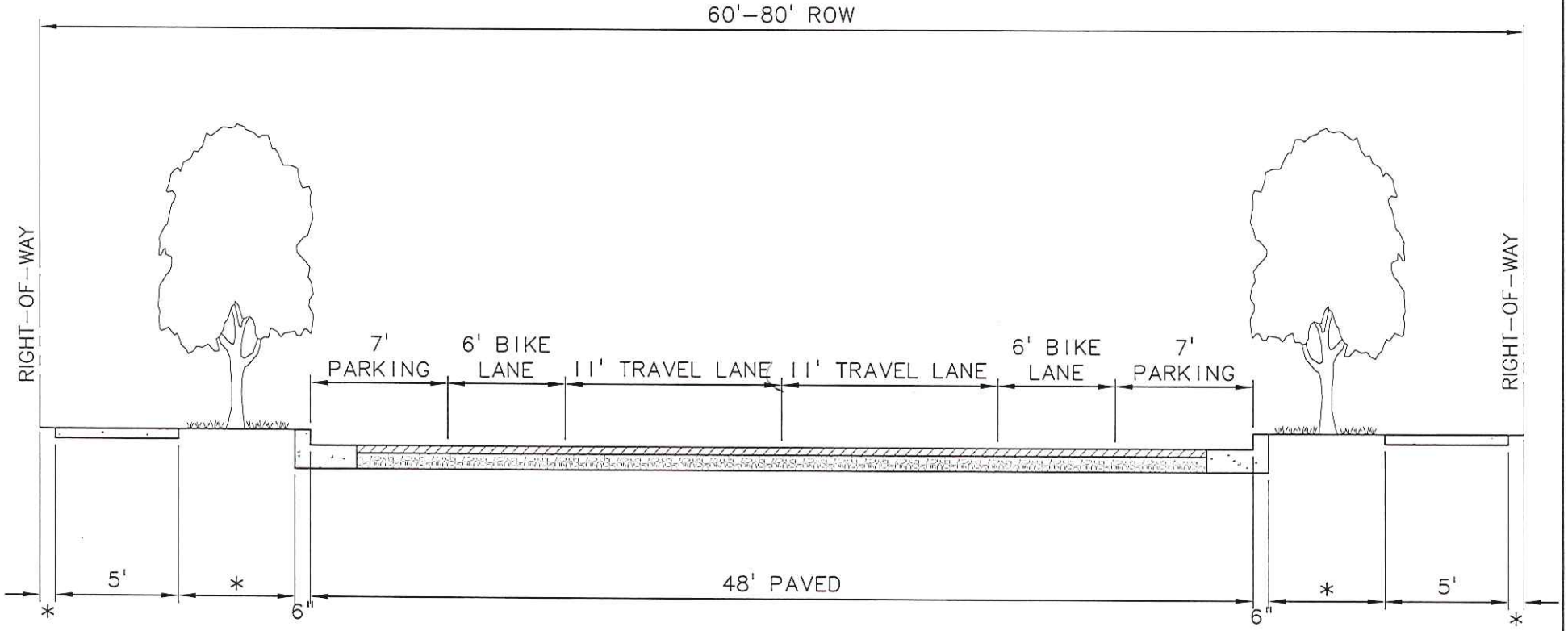
City to the Sunset

CITY OF NORTH PLAINS
COLLECTOR 60'-80' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2i
DATE: 11/05	PAGE: 32



* DIMENSION VARIES WITH RIGHT-OF-WAY

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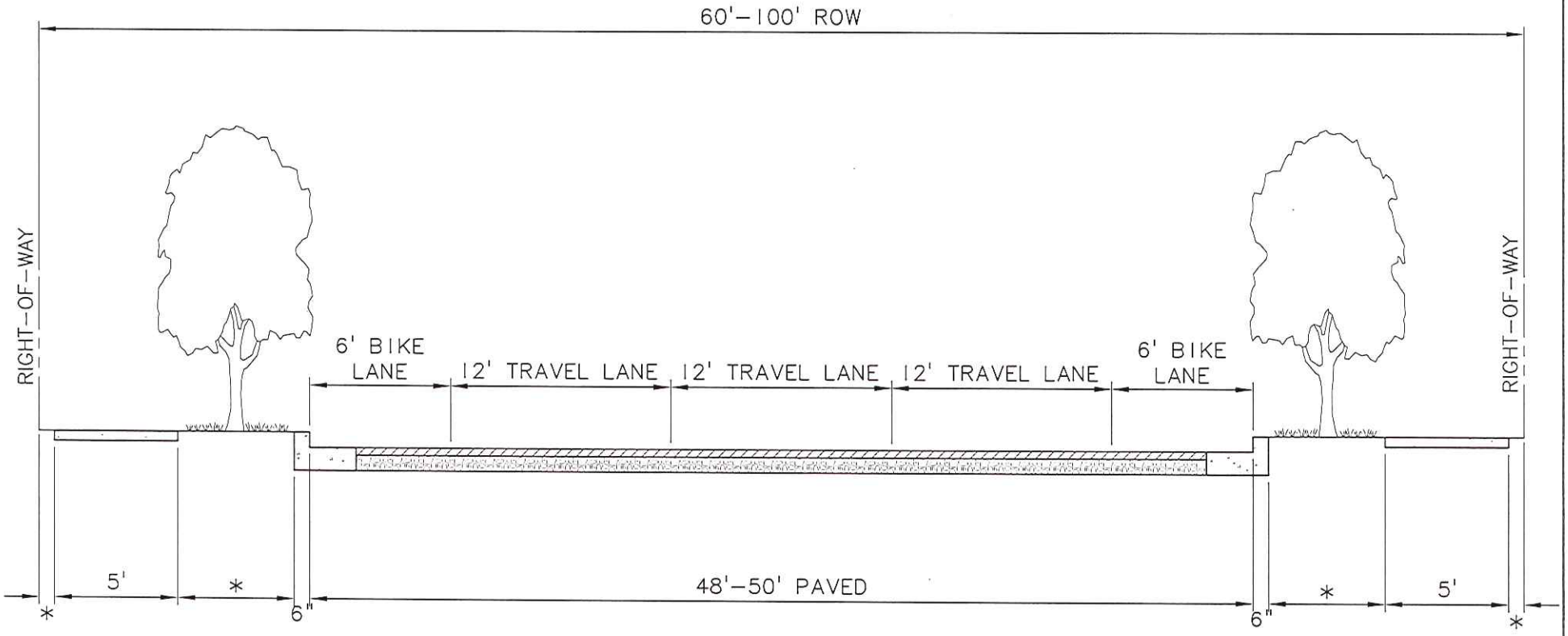
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS
COLLECTOR (BOULEVARD) 60'-80' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2j
DATE: 11/05	PAGE: 33



* DIMENSION VARIES WITH RIGHT–OF–WAY

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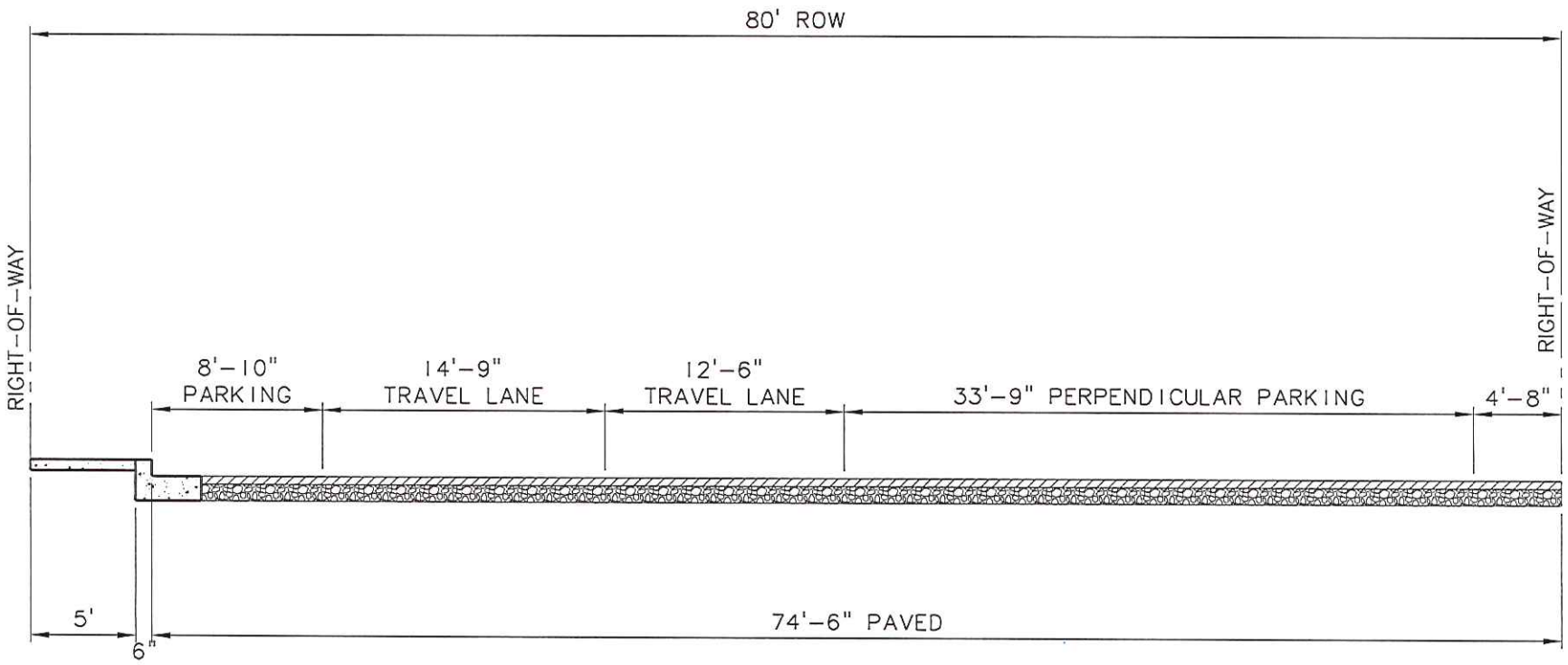
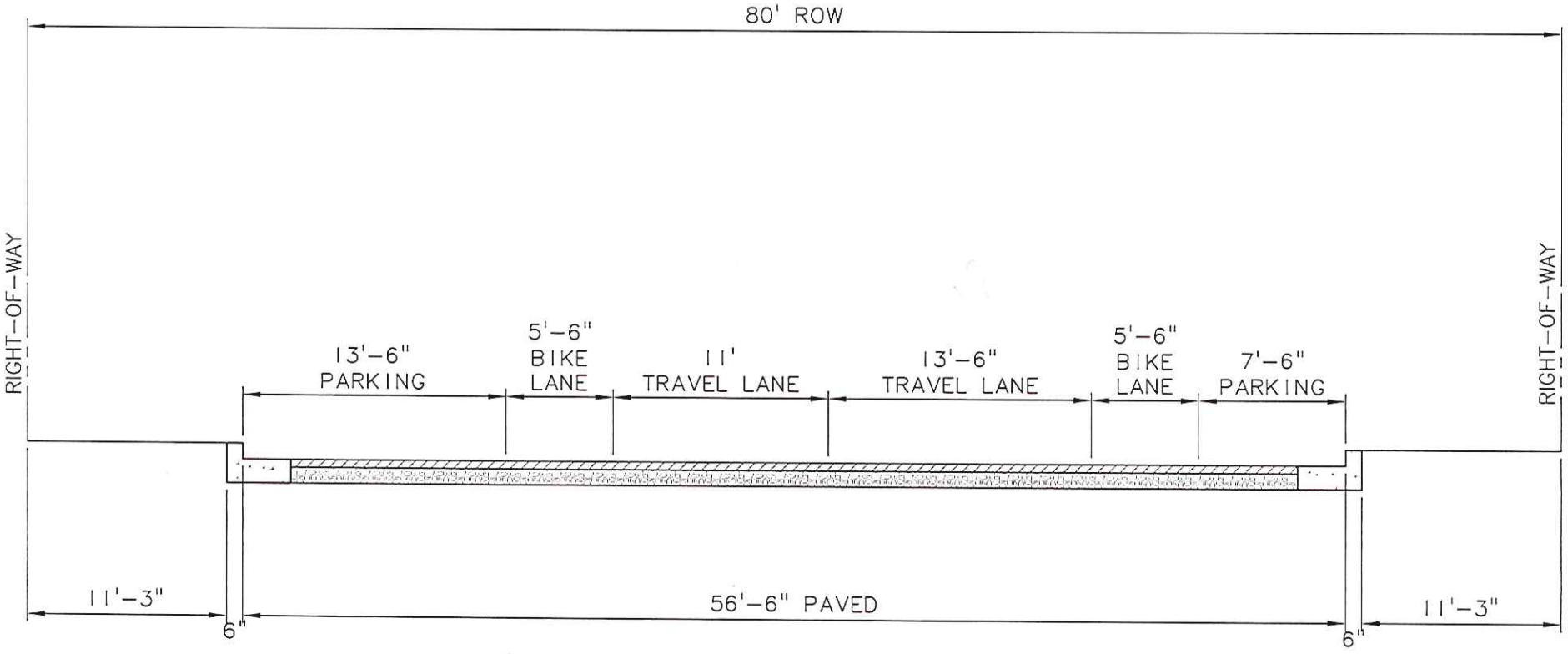
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS
ARTERIAL 60'-100' RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2k
DATE: 11/05	PAGE: 34



MSA Murray, Smith & Associates, Inc. Engineers/Planners Portland, Oregon	NORTH PLAINS City to the Sunset	CITY OF NORTH PLAINS COMMERCIAL ST -- MAIN ST TO 318TH AVE EXISTING RIGHT-OF-WAY ROAD SECTION	SCALE: NTS DATE: 12/05	FIGURE: 5-2n PAGE: 37



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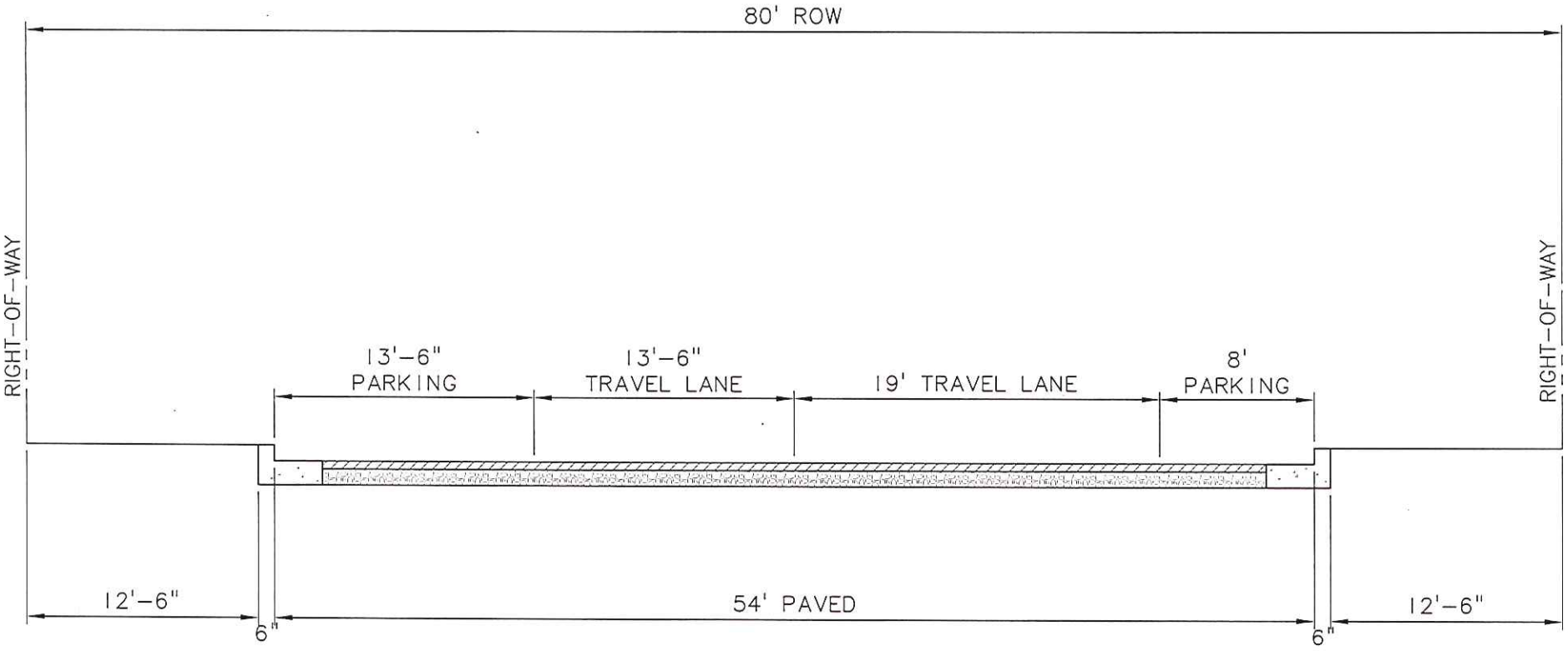
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

COMMERCIAL ST -- MAIN ST TO 313TH

"ALTERNATIVE A" RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2m
DATE: 11/05	PAGE: 36



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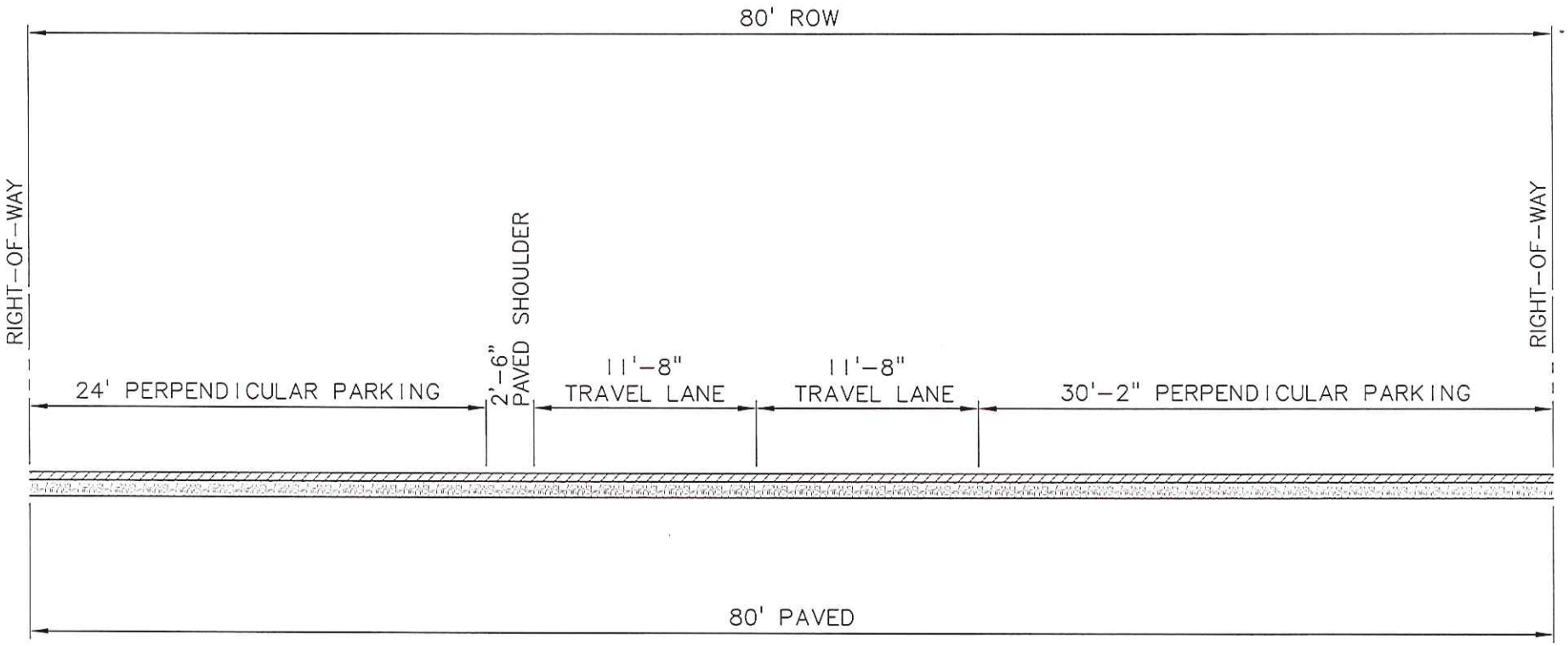
NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS

COMMERCIAL ST -- MAIN ST TO 313TH
EXISTING RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2L
DATE: 11/05	PAGE: 35



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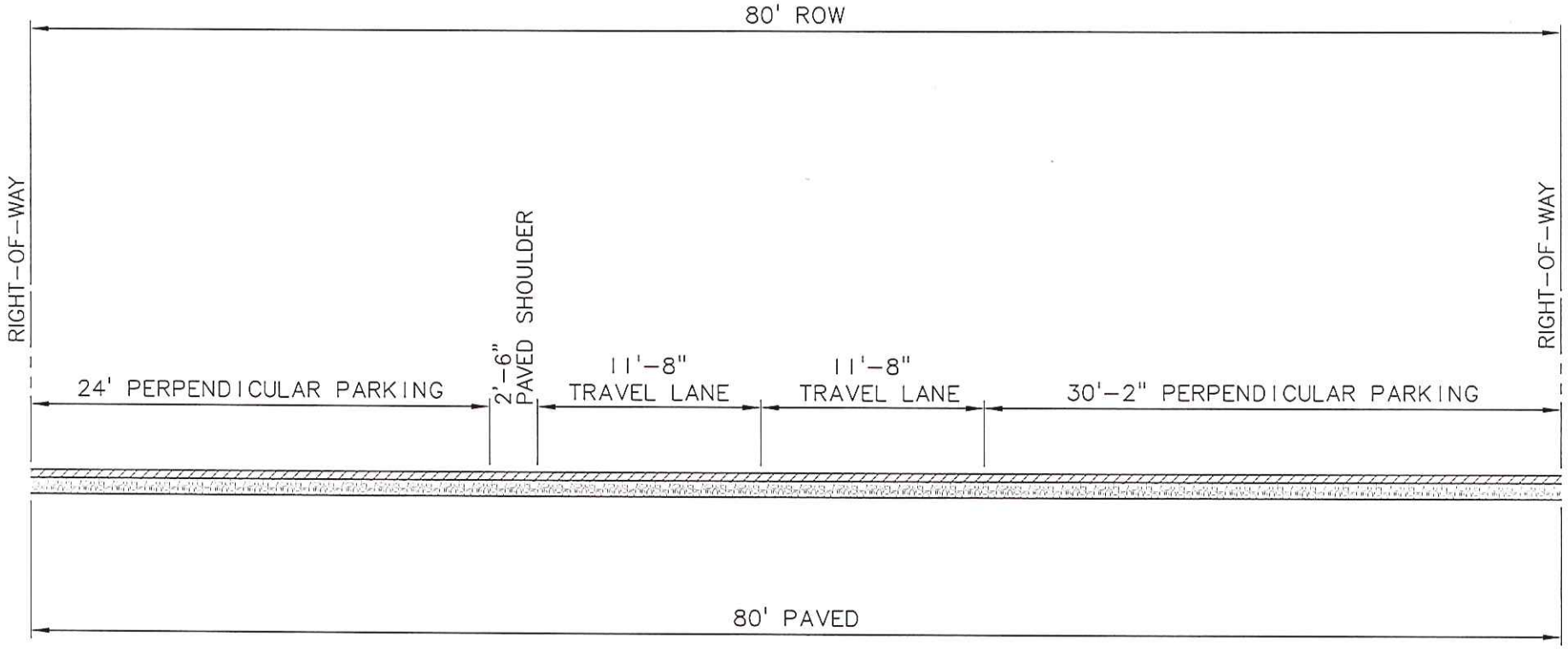
NORTH PLAINS City to the Sunset

CITY OF NORTH PLAINS

COMMERCIAL ST -- 318TH AVE TO 321ST AVE
EXISTING RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2o
DATE: 11/05	PAGE: 38



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NORTH PLAINS City in the Sunset

CITY OF NORTH PLAINS

COMMERCIAL ST -- 321ST AVE TO GORDON RD EXISTING RIGHT-OF-WAY ROAD SECTION

SCALE: NTS	FIGURE: 5-2p
DATE: 11/05	PAGE: 39

RELATIONSHIP BETWEEN CONTROL OF ACCESS AND TRAFFIC MOVEMENT

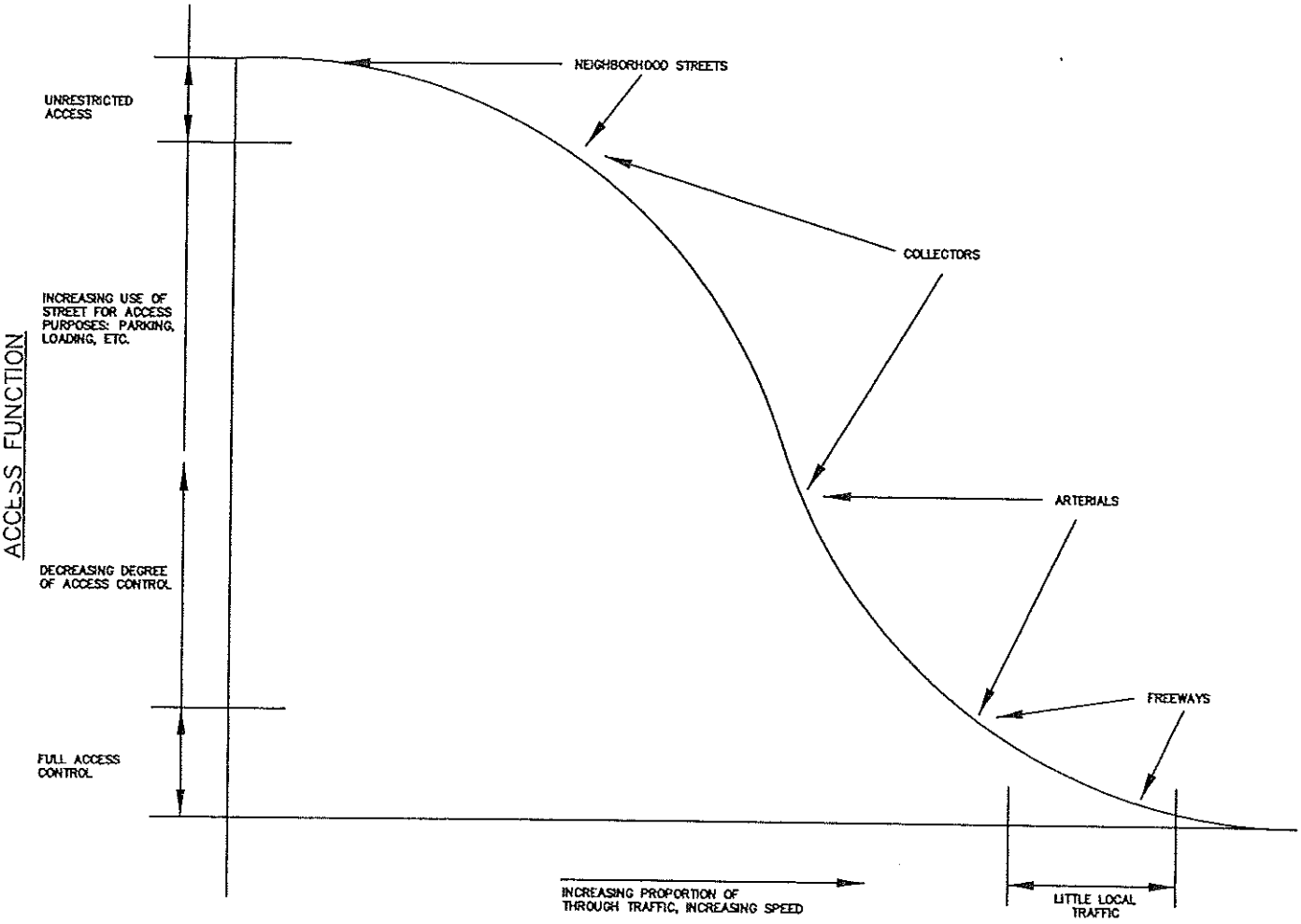

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FIGURE:5-3

TRANSPORTATION SYTEM PLAN
CITY OF NORTH PLAINS

DES.
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CHK.
APP.
REV.

PRO. # 00114

The design standards for access in the City of North Plains roadway system have been developed to maximize the safety and efficiency of the entire transportation system. The street design standards are listed in the following table:

TABLE 3
STREET DESIGN STANDARDS

FUNCTIONAL CLASSIFICATION	MINIMUM ACCESS SPACING	SPACING	POSTED SPEED	ADJACENT LAND USE
Arterial	600 feet	1 Mile	35-50 MPH	Light Industrial/Office. Low to Medium Density Residential Neighborhood Commercial
Collector - Boulevard - Commercial	100 feet	1/4 -1/2 mile	25-35 MPH 25 MPH 25 MPH	Low/Medium Density
Local Street	Individual lots	300-500 feet	25-35 MPH	Residential Low density residential

These roadway design standards are to be used as a guideline for the development of future roadway facilities within North Plains. As the City continues to develop, there may be the need to provide some flexibility in the City's road design standard, especially on local streets; assuming that the collector and arterial street system is functioning properly. The purpose of a flexible design standard is to accommodate development needs within the City in a consistent manner but also allow for individual consideration of unique issues such as, but not limited to, land access, non-auto travel modes, right-of-way constraints, terrain, vegetation and building orientation.

5.05.40 Neighborhood Traffic Management

If local traffic conditions arise that conflict with adopted roadway design and policies, the City should review ongoing research regarding roadway design and adopt new or improved design features when available, and if applicable, to the City of North Plains standards. In addition, there are provisions that could be added to the City development code to provide the desired flexibility. For example, the City of Portland established and adopted traffic control measures to identify and deal with problems related to safety, travel speed and

travel volume on local streets. These measures are generally policy-oriented but allowed the City to test and implement traffic control devices sought to achieve stated goals and policies (i.e. routing through-traffic from local streets onto arterials) through such measures as speed humps and turning circles.

Research and implementation of traffic calming devices used to control traffic on local streets have shown some success outside the United States. At a minimum, there are four important references that should be used to assist in road design. These include:

- *Roadside Design Guide* by the American Association of State Highway and Transportation Officials (AASHTO).
- *A Policy on Geometric Design of Highways and Streets* by AASHTO.
- *Residential Streets - Second Edition* by the American Society of Civil Engineers (ASCE), National Association of Home Builders and the Urban Land Institute (ULI).
- *Residential Street Design and Traffic Control* by the Institute of Transportation Engineers (ITE).

For streets designed as Collector or lower, the City should be given the latitude to consider street modifications to preserve trees. In conclusion, consideration of such policies will help the City to allow flexibility in the design of roads but still maintain a standard set of design parameters.

Neighborhood Traffic Management measures alter the physical street and driving environment to encourage or require a desired driving action. Many of the techniques listed below are known as traffic calming devices. These efforts can be used to reduce speeds to those posted or below as desired:

5.05.42 **Speed Humps:** Speed humps have become a valuable traffic management device in the public right-of-way. They have been studied for many years and have shown positive results. A speed hump differs from a speed bump by its size. A speed hump is 12 to 14 feet long and three to four inches high while a speed bump may be only two to three feet long and three to four inches high. A properly designed speed hump causes a sudden, potentially dangerous jar to the vehicle. Properly designed speed humps have mild effects that tend to slow drivers down without losing control when crossing a hump. Raised crosswalks or intersections can be designed to have similar effects.

Speed humps are much cheaper than traffic circles and may prove to be as effective. Guidelines should be established for the testing and evaluation of speed humps on local neighborhood streets where speed appears to be a problem.

5.05.44 **Traffic Circles:** Traffic circles reduce vehicle speeds and slow down fast moving vehicles on local residential streets. Traffic circles do not divert local traffic and do not restrict access to adjacent streets or land uses. They are usually installed in a series or two or more adjacent intersections to create a reduced-speed corridor. Traffic circles are commonly used in European cities, as well as Portland and other cities in Oregon. Traffic circles reduce speed while maintaining a high level of service and capacity.

A traffic circle may cost as much as 510,000 to construct. Development of a plan for the use of traffic circles in a particular neighborhood (public meetings, testing, and traffic engineering evaluation of testing and final design) adds to the total cost of installing a traffic circle. These devices have landscape interiors, requiring ongoing irrigation and maintenance.

5.05.46 **Diverters, Forced-Turn Channelization and Cul-de-Sacs:** Diagonal diverters involve the installation of a diagonal barrier in the intersection. This forces vehicles to make a 90-degree turn. These devices permit better circulation than cul-de-sacs and can be designed to allow the passage of emergency vehicles. Certain maintenance aspects, such as manhole cover access, should be considered when applying this type of device.

Semi-diverters limit access to a street by blocking one direction of travel at an intersection. Semi-diverters reduce traffic volumes and retain easy access for emergency vehicles. However, because half of the street is still open to traffic, the violation rate can be high.

Forced-turn channelization generally involves the installation of traffic islands to prohibit certain movements. For example, to force right turns at an intersection, an island could be installed to make left or through movement difficult. This installation can increase safety at an intersection by discouraging unsafe movements. Cul-de-sacs involve closure of a street, either midblock or adjacent to an intersection. Their purpose is to fully block access to the adjacent street. Cul-de-sacs can have the largest negative impact on emergency vehicle access time. Use of cul-de-sacs reduces the permeability of the street network and force drivers to use a limited number of routes to reach their destinations. In effect, the traffic removed from a cul-de-sac is forced on to other streets, potentially causing traffic problems in these locations.

5.05.48 **Chokers:** Chokers are also called curb extensions, narrow the street by widening the sidewalk area or landscaping to provide safer pedestrian crossings. Additionally, the narrowed street reminds drivers that they are not on a major thoroughfare. Chokers may effectively reduce speeds on local streets in neighborhoods or commercial areas, while increasing pedestrian

safety. North Plains should experiment with chokers in the public right-of-way. Guidelines should be established for the testing and evaluation of chokers on local neighborhood streets.

All of these traffic management devices force changes in the flow of traffic and create obstacles for emergency vehicles. They should be considered only where a significant traffic problem could be greatly reduced or eliminated and adequate access for emergency service can be maintained. They should be considered on a case-by-case basis and used only with a consensus of the affected residents.

Many methods can play a role in traffic management. Narrowing streets or making them feel narrower with placement of parking or planting of trees along the sides or in median strips can slow traffic. Below is a summary of proposed actions regarding traffic management devices.

- Standards for uniform application of traffic control devices are important.
- Standards for traffic signals, -stop signs and yield signs are contained in the Manual of Uniform Traffic Control Devices (MUTCD) and should be adhered to.
- Standards for the application of stop sign plans should be developed for the City of North Plains.
- Standards should be developed for the uniform application of intersection control flashing beacons and crosswalks in North Plains.
- Speed zones are established by the State Traffic Engineer and should be reevaluated as conditions change.
- Speed humps and similar design techniques should be tested and evaluated in North Plains.
- Traffic circles are effective at reducing speed and are expensive. Their use should be considered after speed humps have been evaluated, because speed humps are potentially more economical.
- Diverters, force-turn channelization and cul-de-sacs should be considered only where a significant problem could be greatly reduced or eliminated by their use and adequate access for emergency services can be maintained.
- Chokers should be tested and evaluated in North Plains.
- A consensus within an affected neighborhood should be reached before implementing stop sign plans, or installing traffic circles, speed humps, diverters, forced-turn channelization, cul-de-sacs, and chokers.

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN
CHAPTER 6

6.00.00 TRANSPORTATION SYSTEM PLAN

The City of North Plains Transportation System Plan incorporates the preferred future transportation alternative and street functional classification standards summarized earlier. The Transportation System Plan includes plans for long range transportation capacity and non-capacity improvements for the arterial/collector street system, and are illustrated in Figure 5-4 (page 2).

The cost of those transportation improvements are estimated in year 2001 dollars, and include:

- Roadway construction/reconstruction (grading and paving)
- Curbs, gutters and sidewalks (both sides)
- Engineering, surveying and inspection

The Transportation System Plan also includes public transportation, bicycle/pedestrian system, air services, rail service, and pipeline transportation improvements. A financial plan for these improvements includes the identification of potential funding sources and a funding strategy. Finally, the identified transportation improvements are prioritized and a schedule for project implementation is developed.

6.01.00 COLLECTOR/ARTERIAL STREET PLAN

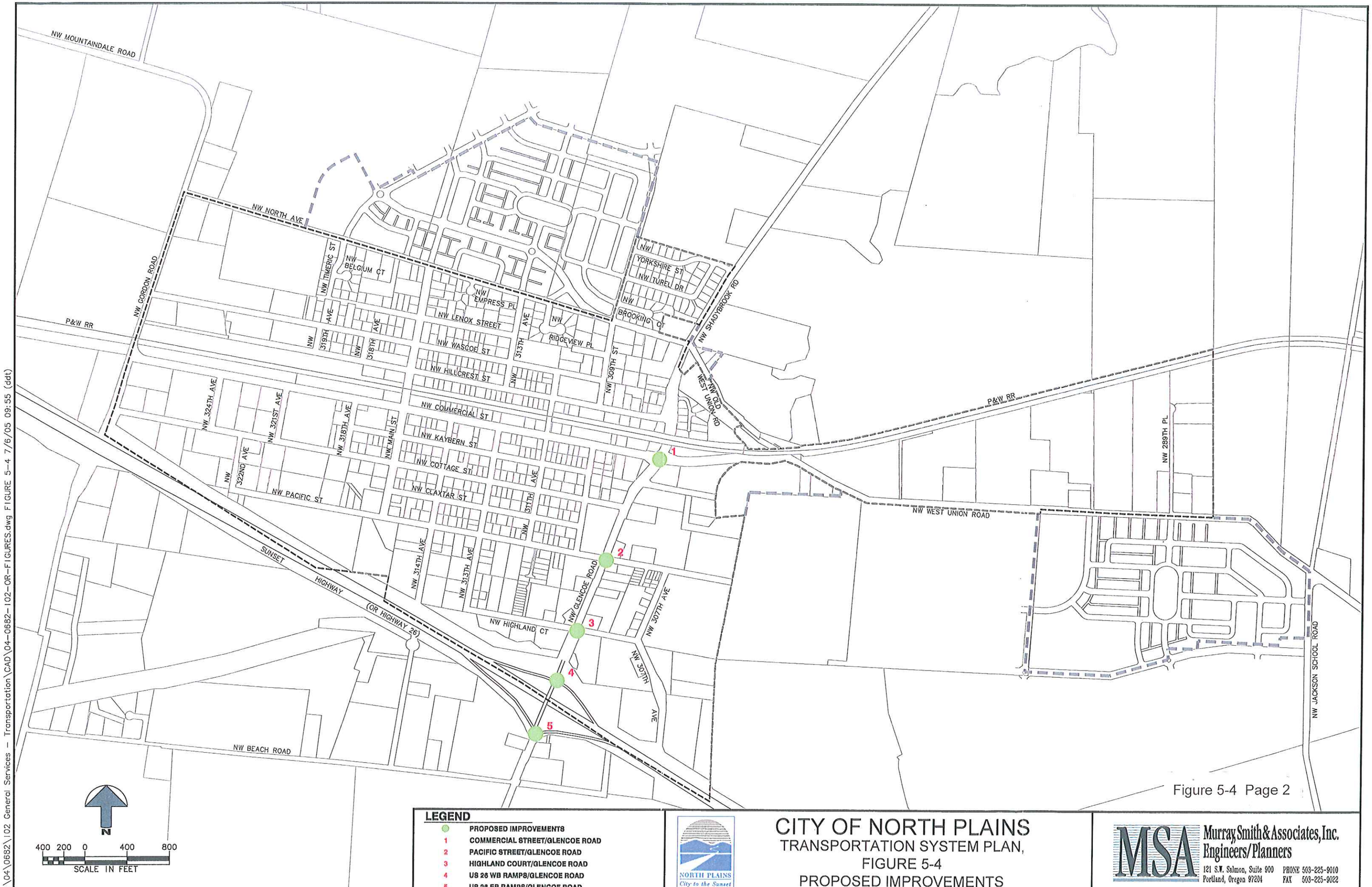
The long range transportation plan for the City of North Plains collector/arterial street system are defined as those projects to be completed in a 20-year time frame. These projects encompass auto, pedestrian/bicyclist and public transportation modes. The long-term transportation improvements for the North Plains area collector/arterial street system include two categories of projects: capacity improvements and non-capacity improvements.

6.01.10 Capacity Improvements

Future roadway capacity deficiencies were identified on collector and arterial streets based upon traffic generated by future land development as identified in the North Plains Neighbor Study and subsequent task updates on the North Plains Comprehensive Plan. These improvements are defined in the "2020 Future Conditions Level of Service Summary" Table.

6.01.20 Non-Capacity Improvements

The City of North Plains has a number of existing collector streets that because of current conditions do not conform with current City road standards and therefore require roadway improvements. These improvements are needed to provide system-wide access for all modes of travel on the collector/arterial street system throughout the North Plains area. These streets present a special problem because most of them are located in areas that are developed.



LEGEND

PROPOSED IMPROVEMENTS

1 COMMERCIAL STREET/GLENCOE ROAD
2 PACIFIC STREET/GLENCOE ROAD
3 HIGHLAND COURT/GLENCOE ROAD
4 US 26 WB RAMPS/GLENCOE ROAD
5 US 26 EB RAMPS/GLENCOE ROAD

NORTH PLAINS City to the Sunset

CITY OF NORTH PLAINS

TRANSPORTATION SYSTEM PLAN, FIGURE 5-4 PROPOSED IMPROVEMENTS

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2020 Future Conditions Level of Service Summary

Intersection	Control Type[1]	AM Peak Hour				PM Peak Hour				Mitigated Action
		Un-Mitigated		Mitigated		Un-Mitigated		Mitigated		
		Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	
U.S. 26 EB Ramps/ Glencoe Road[2]	Signal	126%	F	84%	D-E	104%	F	81%	D	NB dual rights, Widen overpass to four lane section, SB dual through lanes, SB left turn pocket, add peds on West leg
U.S. 26 WB Ramps/ Glencoe Road	Sisnal	106%	F	72%	C-D	1377c	F	80%	D	WB dual rights, extend SB right turn pocket, lengthen cycle to 90 sec
Highland Court/ Glencoe Road	TWSC	>50.0	F	32.2	C	>50.0	F	47.8	D	Signalize Intersection, NB/SB Protected Lefts
Pacific Street/Glencoe Road	TWSC	17.2	C	13.0	B	>50.0	F	22.7	C	Signalize Intersection
Commercial Avenue/Glencoe Road	AWSC	>50.0	F	19.4	B	>50.0	F	28.7	C	Signalize Intersection, Added WB LT pocket and 50' EB RT Pocket
North Avenue/ Glencoe Road/Shady Brook Rd	TWSC	29.0	D			23.8	C			
Pacific Street/Main Street	TWSC	8.8	A			9.0	A			
Commercial Avenue/Main Street	TWSC	16.0	B			32.0	D			
North Avenue/Main Street	TWSC	18.2	C			16.3	B			
Commercial Avenue/Gordon Road	TWSC	9.7	A			10.2	A			
North Avenue/Gordon Road	TWSC	9.5	A			9.6	A			
Shady Brook Rd/Yorkshire St	TWSC	9.4	A			11.0	B			
North Avenue/309th Street	TWSC	12.8	B			13.0	B			

Notes: The same notes listed for the existing condition analysis apply to the future analysis.
(1). Control type prior to mitigation.
(2). According to the Draft 2002-2005 STIP, this intersection will be modified in 2005 to establish free-flowing right turn movements onto the eastbound on-ramp from a new right-turn lane on the south approach of Glencoe Road. A traffic signal is also planned for the eastbound ramp terminals.

The City of North Plains road standards call for a minimum paved street section of 24 feet with sidewalks and parking provided in both sides of identified collectors. In general,

sidewalks. Each of these collector streets should be reconstructed to conform to the City's road standards.

6.01.30 Street Connectivity

Changes have occurred since the list of connectivity projects originally proposed as part of the Transportation System Plan. The following are connectivity improvements to the existing street system based on future growth and the need to provide a more efficient transportation system in the City of North Plains:

STREET CONNECTIVITY PROJECTS (By Priority)*

PROJECT	FROM	TO	APPROXIMATE COST
Cottage	318th	Gordon Road	$ 438,588.00
322nd	Pacific	Cottage	$ 138,197.00
321st	Commercial	Cottage	$ 119,352.00
324th	Commercial	Cottage	$ 119,352.00
Lenox	Current termini	Timeric	$ 81,958.00
318th	Cottage	Pacific	$ 138,197.00
Highland	313th	314th	$ 142,878.00
Wascoe	313th	Main	$ 198,076.00
Pacific	Current termini	East City Limits	$ 168,012.00
		TOTAL	**$1,544,610.00**

*Costs shown in the table above do not include landscaping, utilities or right-of-way.

The following projects have been eliminated from the list shown as part of the original Transportation System Plan:

- 307th Avenue (Pacific to West Union Road)
- Hillcrest to Wascoe (proposed connection)
- Highland Court (313th to 314th Avenues)

The following projects from the original list under proposed street connectivity are now assumed to be constructed as part of future land development projects:

- Lenox (309th to west dead end)
- North Avenue (New construction from Main Street to Gordon Road/Mountaindale).

Figure 5-5 (page 9) has been updated to illustrate the street connectivity for the City of North Plains. The City would need to develop standards for the implementation of traffic management devices on City streets as part of their Capital Improvement Plan. Standards should include warrants for their installation, including spacing, approval process by City

Council and general engineering criteria for construction. Figure 5-5A shows the changes proposed to the original TSP.

Consider including the following policy to address issues related to traffic management and street connectivity:

Policy: Ensure a safe street system

- Use traffic calming techniques in neighborhood traffic control projects and update street standards to include traffic calming devices.
- Require that new street improvements be designed to meet or exceed minimum guidelines set forth in the AASHTO Policy on Geometric Design of Highways and Streets and Institute of Transportation Engineers recommended practice for urban streets. Traffic impact analysis shall utilize the Institute of Transportation Engineers Trip Generation Manual wherever applicable. Design traffic calming devices in accordance with accepted industry standards such as detailed in the Institute of Transportation Engineers recommended practice for urban streets and Oregon State University Transportation Research Institute's Neighborhood Traffic Management guide.
- Locate major activity centers in areas that are accessible by a variety of transportation modes.
- Develop solutions to special traffic problems created around major activity centers that minimize non-local traffic through residential neighborhoods.
- Ensure the development and completion of logical and continuous local street patterns within residential and mixed use areas as development occurs by adopting future street plans and streets connectivity standards. New development must provide for the continuation and interconnection of existing streets and must avoid long dead end street patterns.
- Establish public street and land division standards that reinforce the public street system as the City's essential framework for safe, convenient, and efficient neighborhood circulation, property access, emergency response, public facilities, and utilities for all properties.
- Develop a well-connected public street system while minimizing motor vehicle traffic impacts within residential areas.
- Ensure that all residential development will be served by a connected local public street system and provide street frontage and access for all residential parcels. Establish a hierarchy of connected collectors and local streets. Require Neighborhood Circulation Plans that seek to balance local traffic among local streets, provide multidirectional access to the collector-arterial system, reduce non-local traffic, and ensure optimal emergency response.

6.01.40 Statement of Street Connectivity for Expansion Areas in North Plains Comprehensive Plan and Transportation Plan

The City recognizes that street connectivity between the existing city and the expansion areas is critical to development of the vision established in the Comprehensive Plan. The

expansion areas will be developed consistent with the development standards established in the Neighborhood Community Zone as far as street spacing and length of block within the expansion areas.

In addition, the north expansion area will be developed with the requirement that the following collector streets will be extended from the existing city and as a part of the transportation system, into the expansion area.

1. NW Timeric Street north from North Avenue to the northern border of the expansion area.
2. NW Main Street from North Avenue to the future extension of NW Timeric Street.
3. NE 313th Avenue north from North Avenue to the northern border of the expansion area.
4. NE 309th Avenue north from North Avenue to the northern border of the expansion area.
5. NW North Avenue shall be revised at NW 309th Avenue by realigning the street to the northwest in an alignment to connect to NW Mountaindale Road in future expansions.
6. Extension of a realignment of North Avenue to be named Mountaindale Avenue west through the North expansion area from 309th Avenue to the extension of Timeric Street.

In addition to the above requirements for collector streets, the local streets west of 309th Avenue in the expansion area shall connect whenever feasible to the streets in the Westridge Subdivision.

The street connectivity in the north expansion area is shown on the exhibit entitled City of North Plains Transportation System Plan Proposed Classification System.

The transportation system in the east expansion area shall be developed in accordance with the standards adopted in the Neighborhood Community Zone. In addition, the collector streets shall be developed in substantial conformity to the street pattern for collector streets shown on the exhibit entitled City of North Plains Transportation System Plan Proposed Classification System. NW West Union Road shall also be developed to arterial street standards as required by Washington County.

North Plains - North Expansion Area
Street Connectivity Project by Priority

Project	From	To
NW 309th Ave.	NW North Are.	N. to future school
Mountaindale Ave.	NW 309th Ave.	NW. Timeric St.
NW North Are.	NW. Timeric St.	NW 313th Ave.
NW 313th Ave.	NW North Are.	N. to future school
NW. Timeric St.	NW North Are.	N. to future school
NW Main St.	NW North Are.	NW. Timeric St.
NW Brooking St.	NW 309th Ave.	NW Turel St.
NW Turel St.	NW 309th Ave.	NW. Timeric St.
Mountaindale Ave.	NW 309th Ave.	NW. Timeric St.

North Plains - East Expansion Area
Street Connectivity Project by Priority

Project	From	To
NW West Union Rd.	NW Jackson School Rd.	Urban greenbelt
NW Pacific St.	NW Jackson School Rd.	McKay Creek greenbelt
NW Jackson School Rd.	NW Pacific St.	NW West Union Rd.
No name streets (3 of them)	NW Pacific St.	NW West Union Rd.
Temp. Road	NW Jackson School Rd.	Various routes within

**Refer to Figure B-1 Proposed Classification System (Revised Map)*

6.02.00 PUBLIC TRANSPORTATION PLAN

The Oregon Transportation Plan identifies statewide policy and a long-range plan for a coordinated transportation system. The Plan is intended to meet the requirements of the Land Conservation and Development Commission (LCDC) in the Transportation Planning Rule (Goal 12) and the federal Intermodal Surface Transportation Efficiency Act (ISTEA). This policy plan includes a network of facilities and service for air. rail, highways, public

over the next 20 years.

Transit goals and strategies in the State plan that are specific to the City of North Plains and/or local transit service include the following:

- Local public transit services and elderly and disadvantage service providers should connect to intercity passenger terminals.

Long range transportation improvements are listed in the "Mitigated Action" column in the "2020 Future Conditions Level of Service Summary" Table. This list does not include transit-related projects.

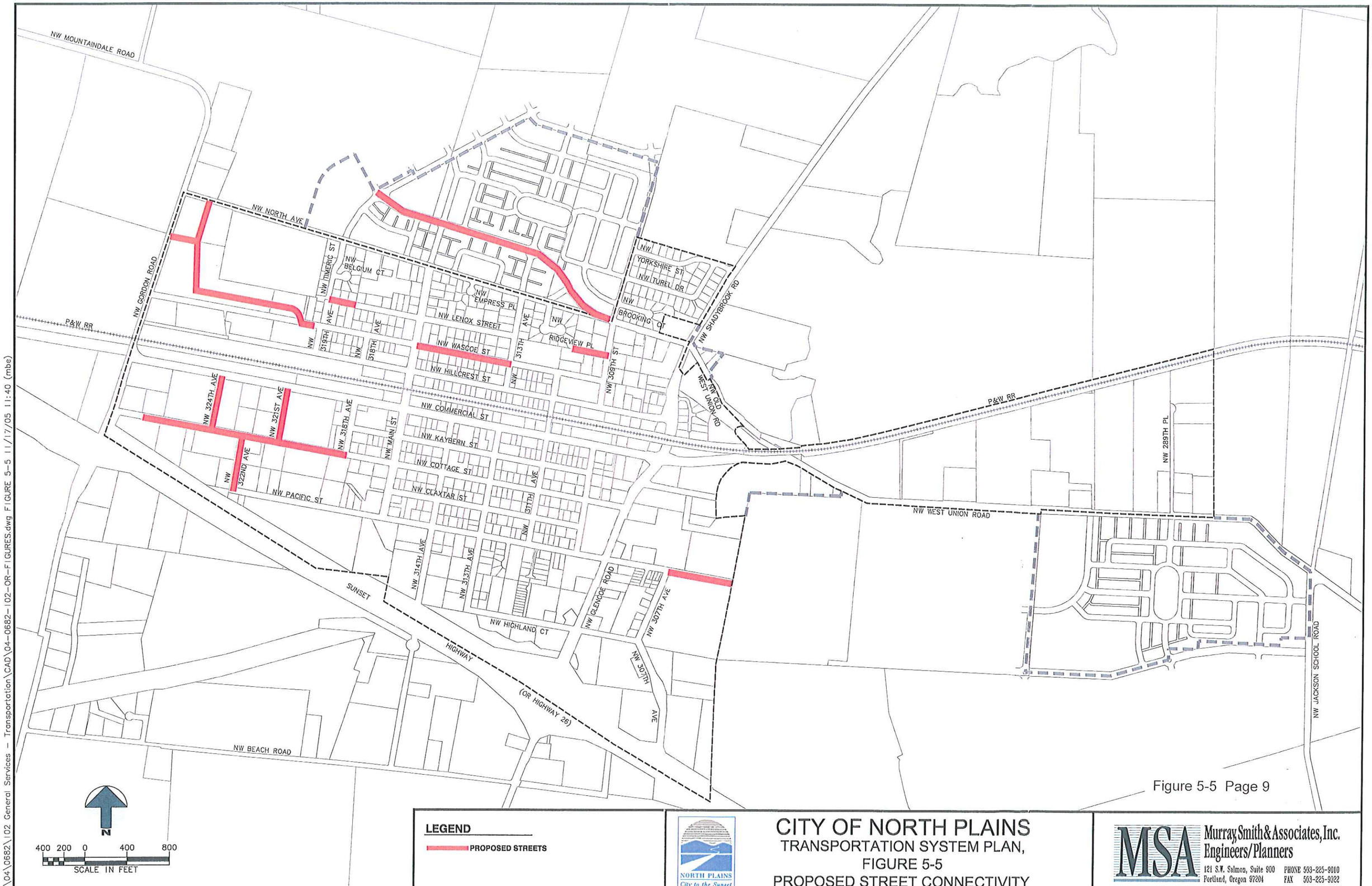


Figure 5-5 Page 9

G:\04\0682\02 General Services - Transportation\CAD\04-0682-102-OR-FIGURES.dwg FIGURE 5-5 11/17/05 11:40 (mbe)

6.02.10 Transit

Competition for scarce local revenues will make continued funding of local fixed-route and dial-a-ride transit service in the North Plains area increasingly difficult. Funding for future service expansion of local transit will also be difficult within current fiscal programs. However, as the City of North Plains urban area continues to grow increased demand for transit service also will like result. As a consequence, a local transit service district should provide the operation of local transit service. This will enable the local transit service provider a better means of capital and transit operation funding support through state and federal funding subsidy.

Based on the assessment of commuter and local transit service in the North Plains area, the City along with Washington County and Tri-Met should investigate the following:

1. Conduct a market assessment to determine the demand and needs for commuter transit service from North Plains to Portland. Assessment to include identification of local transit connection to commuter service routes and park-and-ride facilities.
2. Establish a local transit service district to include the City of North Plains, Washington County, and Tri-Met. Transit service operations can be provided either directly by the local transit district or contracted through private service operations. The local transit district should include local transit in the North Plains area (dial-a-ride, fixed route and disadvantage rider) service and weekday. commuter transit service between North Plains and Portland.
3. Establish long term funding base for local and commuter transit service within the local transit district to include federal and state funding resources for capital and operating expenses.
4. Develop a policy agreement between the local transit service district and Tri-Met for provision of service operations inside Tri-Met service district.
5. Ensure that all local and commuter transit service implement the accessible transportation requirements established by the Americans with Disabilities Act of 1990, and be coordinated with future intercity bus service in the North Plains urban area.

In addition, "telecommuting" is becoming an increasingly popular method of working at home using telephone communications and home computers. Use of telecommuting technology may result in the reduction or even elimination of some auto and transit work travel; travel that typically occurs during the heaviest traveled time periods. The City of North Plains Transportation System Plan recognizes this expanding mode of telecommuting as an effective means of decreasing the need for expanded or new conventional transportation system infrastructure. As such, the City of North Plains Transportation System Plan encourages, through land use policy and plans the use of telecommuting as an alternative mode to the automobile for work travel commuting.

6.03.00 BICYCLE/PEDESTRIAN PLAN

Future bicycle and sidewalk improvements identified in conjunction with roadway improvements are intended to provide bicyclists and pedestrians with a full accessibility in the City of North Plains collector/arterial street system. The bicycle route plan is illustrated in Figure 5-6. There is a number of additional bicycle and pedestrian facility locations that will provide for optimal circulation for the destination oriented bicyclist, especially for travel between residential areas and schools.

6.03.10 Bicycle/Pedestrian Facilities Projects

1. Glencoe Road: Include bicycle lanes and sidewalks on both sides of the road. This would provide connectivity to the existing sidewalks and future growth to the east of Glencoe Road.

2. Commercial Street: Include bicycle lanes and sidewalks on both sides of the road. A detailed plan should be developed to make sure these facilities coexist with parking demand in the downtown area.

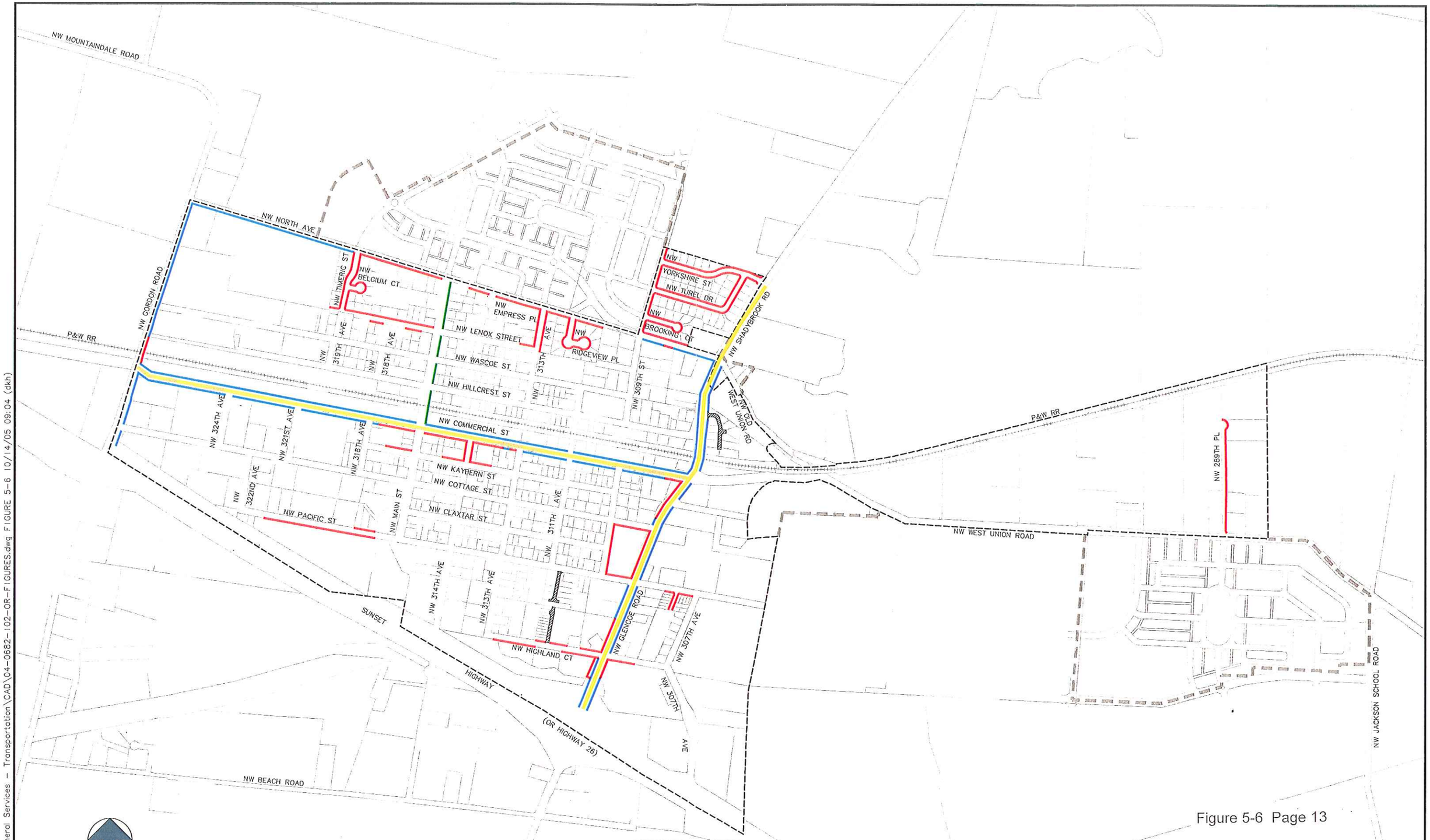
3. North Avenue: On the near term a sidewalk should be constructed on the south side of North Avenue to connect the existing sidewalk to Gordon Road. Sidewalks should also be added on the south side of North Avenue between 309th Avenue and Glencoe Road. These improvements would complete a system of sidewalks on North Avenue in addition to providing connectivity to the adjacent street system. In the long term sidewalks should be added to the north side of North Avenue also.

4. Gordon Road: Provide sidewalk on the east side. This improvement will facilitate a connection to the future extension of sidewalk on the south side of North Avenue and to sidewalks along Commercial Street.

The City of North Plains Parks and Recreation Capital Facilities Master Plan (February 28, 2000) made the recommendation to develop approximately 14,024 linear feet of 10-foot wide all weather trails/pathways (including two trail-heads with parking and restroom facilities) to provide for recreation, linkage, and access to parks, schools, and open space areas. As a consequence, the following streets should be improved first to provide a potential linkage to the proposed trail system (a map of this system is provided as part of the original TSP):

BICYCLE/PEDESTRIAN FACILITIES PROJECTS (By Priority)

LOCATION	DESCRIPTION	APPROX. COST
North Avenue (Gordon Road to Glencoe Road)	2,200 feet of 5 feet AC sidewalk	$ 77,000.00
Main Street (Commercial Street toPacific Street)	4,800 feet of 5 feet concrete sidewalk	$ 168,000.00
Glencoe Road (Cottage Street to North Avenue)	2,700 feet of 5 feet concrete sidewalk	$ 94,500.00
Commercial Street/West Union Road (Main Street to East City limits)	13,500 feet of 5 feet minimum concrete sidewalk	$ 455,000.00
Gordon Road (Commercial Street to North Avenue)	2, 800 feet of 5 feet concrete sidewalk	$ 98,000.00
Pacific Street (Main Street to 307th Avenue)	5, 400 feet of 5 feet concrete sidewalk	$ 189,000.00
31 1th Street (Hillcrest Street to Pacific Street)	2,800 feet of 5 feet concrete sidewalk	$ 98,000.00
309th Street (North Avenue to Hillcrest Street)	1,600 feet of 5 feet concrete sidewalk	$ 56,000.00
Lenox Street (Timeric Street to 300 feet west)	600 feet of 5 feet concrete sidewalk	$ 21,000.00
	TOTAL	**$1,256,500.00**



LEGEND

- APPROXIMATE LOCATION OF PATHWAY
- APPROXIMATE LOCATION OF SIDEWALK
- LOCATION OF PROPOSED SIDEWALK
- INSTALL BIKE LANES
- PRIVATE ROAD

CITY OF NORTH PLAINS

TRANSPORTATION SYSTEM PLAN, FIGURE 5-6 PEDESTRIAN/BIKE PLAN

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6.04.00 TRUCK ROUTES

Efficient truck movement plays a vital role in maintaining and developing the City of North Plains economic base. Truck routes that are well planned can provide for the movement of raw materials, finished products and services. Trucks moving from industrial areas to regional highways or traveling through North Plains are different than trucks making local deliveries. An efficient transportation system should be planned to accommodate this goods movement need.

Truck routes provide for the efficient movement of goods while at the same time maintaining neighborhood livability, public safety and minimizing maintenance costs of the roadway system. As improvements are made to the railroad trestle on Gordon Road, the City will be in a better position to designate a truck route to keep trucks out of the downtown area and other residential areas. Glencoe Road, West Union Road and Gordon Road will be part of a truck route within the City of North Plains.

A Truck Route Map (Figure 5-7) has been provided with the purpose of addressing the through trucks movement and not local deliveries. The main objective is to focus on a design criteria suitable for trucks, such as maintaining 12-foot travel lanes, longer access spacing, 35 foot or larger curb returns and pavement design that accommodates a larger share of trucks.

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN, FIGURE 5-7
PROPOSED TRUCK ROUTES

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6.05.40 Pipeline

Pipelines transportation in and through the City includes transmission lines for electricity, cable television and telephone service, pipeline transport of water, sewer and natural gas. The City of North Plains Transportation System Plan encourages continued use of these services to move goods in and through the City.

6.06.00 POLICIES/LAND USE REGULATIONS FOR IMPLEMENTING THE TRANSPORTATION SYSTEM PLAN

The Oregon Transportation Planning Rule for Goal 12 requires that local governments adopt standards in their transportation system plans that encourage multi-modal travel and reduced reliance on the single-occupant automobile. The Transportation Planning Rule also requires jurisdictions to set standards to promote and enhance pedestrian, bicycle and transit travel. As such, the North Plains Transportation System Plan provides the City of North Plains with recommendations to amend their Comprehensive Plan and/or ordinances to achieve the requirements of the Transportation Planning Rule.

Specific recommendations regarding policies and land use regulations related to bicycle, pedestrian and transit travel are outlined in the appendix of this document. In general, these recommendations provide the City of North Plains with direction in considering amendment to their policies in the following areas:

- Alternative land use designations, densities and design standards to encourage development patterns that are more non-auto oriented.
- Identification of which land uses within the City of North Plains should be examined with consideration of the Transportation Planning Rule.
- Land use or subdivision regulations for bicycle parking facilities, pedestrian and bicycle access, and pedestrian (pedestrian oriented development) and bicycle circulation.

The City of North Plains should participate with ODOT and Washington County in the development of their transportation system plans in order to provide for a coordinated and consistent policy and plan, especially for those transportation facilities that cross jurisdiction lines. In addition, as land outside the City of North Plains is developed, a coordinated transportation/land use plan will help ensure a transportation system that serves the need for all users.

6.05.00 AIR/RAIL/WATER/PIPELINE PLAN

6.05.10 Air

The residents of the Air Acres subdivision located immediately south of Highway 26, maintain a landing strip with lights and windsocks. This is a private field and available to the public for emergencies only. It is 3,000 feet long and can accommodate small, general aviation aircraft.

The Port of Portland operates the Hillsboro Airport about 5 miles from North Plains. The Hillsboro Airport is an FAA approved general aviation airport with two runways that accommodate prop and small jet traffic. The Port of Portland's International Airport is located in Portland approximately 35 miles from North Plains. East of Dersham Road and north of Highway 26 there is a glider landing area.

6.05.20 Rail

The Willamette Pacific Railroad contains a single-track line through the center of North Plains connecting Banks with the Portland rail yards. At least five times a day and five days a week trains carry forest products and milled lumber as well as various seeds and produce from Portland. Burlington Northern maintains a storage siding at North Plains. As timber is harvested over the next 10 to 15 years in the Tillamook Burn region, this rail line will become increasingly active. The City has recently acquired a grant from ODOT to work on the design and construction of the raising of the railroad trestle on Gordon Road that will improve truck traffic circulation in the City.

Commuter trains operating on the existing low-density rail freight line infrastructure is becoming of increasing interest in the Washington and Yamhill County areas. Using this concept as a feeder mechanism for the Tri-Met Westside Light Rail Line is being considered. Unlike larger railroads, local haul railroads such as Willamette Pacific are interested in incremental carloads. A recent study by the Oregon Cascades West Council of Governments on the Highway 20/34 Corridor shown that between Corvallis and Toledo, short-haul rail eliminates 240 to 360 truck trips per day and reduces road surface maintenance by approximately 27,000 vehicles. Encouraging movement of certain commodities by rail could help with future highway and maintenance expenses.

6.05.30 Water

There are no navigable waterways within the vicinity of the City of North Plains that support commercial use. As a consequence, no policies or recommendations in this area of transportation are provided.

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN
CHAPTER 7

7.00.00 TRANSPORTATION FINANCING PROGRAM

The Transportation Planning Rule requires Transportation System Plans to evaluate the funding environment for future improvements. This evaluation must include a listing of all future improvements, estimated costs to implement those improvements, a review of potential funding mechanisms, and an analysis of existing sources' ability to fund proposed transportation improvement projects. North Plains' TSP identifies over $4.1 million in 14 specific projects over the next 20 years. This section of the TSP provides an overview of North Plains' revenue outlook and a review of some funding and financing options that may be available to the city of North Plains to fund the improvements.

Pressures from increasing growth throughout much of Oregon have created an environment of estimated improvements that remain unfunded. North Plains will need to work with Washington County and ODOT to finance the potential new transportation projects over the 20-year planning horizon. The actual timing of these projects will be determined by the rate of population and employment growth actually experienced by the community. If population growth exceeds the rate of growth projected for the City of North Plains, the improvements may need to be accelerated. Slower than expected growth will relax the improvement schedule.

7.01.00 HISTORICAL STREET IMPROVEMENT FUNDING SOURCES

In Oregon, state, county, and city jurisdictions work together to coordinate transportation improvements. Table 7-1 shows the distribution of road revenues for the different levels of government within the state by jurisdiction level. Although these numbers were collected and tallied in 1991, ODOT estimates that these figures accurately represent the current revenue structure for transportation-related needs.

TABLE 7-1
SOURCES OF ROAD REVENUES BY JURISDICTION LEVEL

		Jurisdiction Level		All
Revenue Source	State	County	City	Funds
State Road Trust	58%	38%	41%	48%
Local	*0%*	22%	55%	17%
Federal Road	34%	40%	4%	30%
Other	9%	0%	0%	4%
Total	100%	100%	100%	100%

Source: ODOT 1993 Oregon Road Finance Study.

At the state level, nearly half (48 percent in Fiscal Year 1991) of all road-related revenues are attributable to the state highway fund (state road trust), whose sources of revenue include fuel taxes, weight-mile taxes on trucks, and vehicle registration fees. As shown in the table, the state road trust is a considerable source of revenue for all levels of government. Federal sources (generally the federal highway trust account and federal forest revenues) comprise another 30 percent of all road-related revenue. The remaining sources of road-related revenues are generated locally, including property taxes, LIDs, bonds, traffic impact fees, road user taxes, general fund transfers, receipts from other local governments, and other sources.

As a state, Oregon generates 94 percent of its highway revenues from user fees, compared to an average of 78 percent among all states. This fee system, including fuel taxes, weight distance charges, and registration fees, is regarded as equitable because it places the greatest financial burden upon those who create the greatest need for road maintenance and improvements. Unlike many states that have indexed user fees to inflation, Oregon has static road-revenue sources. For example, rather than assessing fuel taxes as ***percentage*** of price per gallon, Oregon's fuel tax is a fixed amount (currently 24 cents) per gallon.

7.01.10 Historical Revenues and Expenditures in the City of North Plains

The City of North Plains accounts for funds dealing with street improvements and maintenance in three separate funds: the Street Fund, the Street and Park Capital Improvement Fund, and T.I.F. Fund. The Street Fund is used for operations and maintenance of the street system, the Street and Park Capital Improvement Fund accounts for System Development Charges collected, and the T.I.F. Fund accounts for traffic impact fees collected.

7.10.20 Street Fund

Revenues and expenditures for the city of North Plains' street fund are shown in Table 7-2 and Table 7-3. Sources of revenues available for street operations and maintenance include the state highway fund, the county gas tax, surface water management fees, grants for specific projects such as $30,000 in 1999 from MSTIP/3, interest from the working capital balance, and other miscellaneous revenue.

TABLE 7-2
CITY OF NORTH PLAINS STREET FUND REVENUES

	1998 Actual	1999 Actual	2000 Actual	2001 Adopted	2002 Adopted
Cash on Hand	$24,923	$39,394	$38.025	$41,229	$48,000
MSTIP/3 Overlay Funds		$30,000			
State Highway Tax	$66,351	$74,268	$77,670	$73,798	$66,250
County Gas Tax	$6,705	$7,570	$8,542	$8,500	$8,500
Surface Water Mgmt. Fees	$7,111	$9,017	$9,093	$8,000	$8,220
Interest	$2,009	$1,891	$2,470	$2,250	$2,760
Misc. Revenue	$7.425	$5,589	$3,080	$2,800	$2,000
Total	**$114,524**	**$167,728**	**$138,880**	**$136,577**	**$135,730**

Source: The Cit\ of North Plains

As shown in Table 7-2, funds from the state highway fund provide a large proportion (over 50 percent excluding grant funds) of the revenues available to the city of North Plains' street fund. Most of the street fund expenditures, shown in Table 7-3, are for operations and maintenance, with spending disaggregated to the following categories: payroll related, materials and services, capital expenses and other. The largest categories have historically been payroll related, and materials and services. The capital outlay expenditures have been limited to the amounts available from grant funds.

TABLE 7-3
CITY OF NORTH PLAINS STREET FUND EXPENDITURES

	1998 Actual	1999 Actual	2000 Actual	2001 Adopted	2002 Adopted
Payroll-Related	$35,156	$47,654	$52,022	$60,638	$55,500
Materials and Services	$38.299	$45,049	$42,315	$61,099	$65,403
Capital Expenses					
MSTIP/3 Overlay Funds		$30.000			
All other Capital Expenses	$1,675	$7,000	$933	$600	$3.000
Contingency				$11,240	$7,827
Unappropriated Ending Balance	$39.394	$38,025	$43.61	$3,000	$4,000
Total	**$114,524**	**$167,728**	**$138,880**	**$136,577**	**$135,730**

Source: City of North Plains

7.01.40 Street and Parks Capital Improvement Fund

The Street and Parks Capital Improvement Fund was developed in 1991 for the purpose of simplifying and clarifying the accounting of systems development charges for parks and systems use fees. As shown in Table 7-4, in addition to SDC fees, revenues are also from grants for specific projects, including ODOT grants, and several Special Small Cities Allotment grants.

TABLE 7-4
CITY OF NORTH PLAINS STREET & PARKS CAPITAL IMPROVEMENT FUND REVENUES

	1998 Actual	1999 Actual	2000 Actual	2001 Adopted	2002 Adopted
Cash on Hand	$82.010	$110,491	$116,212	$117,000	$106,000
Streets- SDC's	514,900	$9,000	$1,500	$75,000	$6,000
Fee in Lieu of Street Impr.		$9,327		$100,000	$100,000
Parks SDC	$4,225	$2,550	$2,350	$100,000	$39,500
Parks & Recreation Grant				$9,226	$6,146
USA Funds/SWM Plan		$5,000			
CDBG St. Improv. Grants		$25,385	$88,915		
MSTIP St. Funds			$53,830	$162,095	$449,607
County Matching Funds					
ODOT Grant - Trestle				$1,418,271	$1,100,000
Special Cities Allotment		$25,000		$25,000	$25,000
DED Grant/Loan			$26,408	$5,000	
Engineer Design Fees (STS)	$23,298	$10,857	$2,059	$200,000	$200,000
SDC- Interest	$6,285	$5.763	$4.907	$4,400	$4,400
Parks- Interest		S223	$748	$150	$800
Fee in Lieu- Interest		$118	$542	$400	$800
Total	**$130,718**	**$203,714**	**$297,470**	**$2,216,542**	**$2,038,253**

Source: City of North Plains

As North Plains has been seeking a UGB expansion that may result in accelerated population growth and development, the 2001 adopted budget reflects increased SDCs and payments in lieu of improvements fees. The expenses to the fund are expected to increase correspondingly, as shown in Table 7-5.

TABLE 7-5
CITY OF NORTH PLAINS STREET & PARKS CAPITAL IMPROVEMENT FUND EXPENDITURES

	1998 Actual	1999 Actual	2000 Actual	2001 Adopted	2002 Adopted
Paroll-Related	$915	$1,291	$1,319	$5,200	$5200
Materials and Services	$12,499	$50,898	$11,939	$209,300	$206,084
Capital Expenses					
Street Improvements	$6,813	$4,802	$1,844	$152,487	$71,012
Fee in Lieu of Impr. Expenses				$110,188	$111,445
Parks Grant				$9,226	$6,146
Parks Grant/City Match				$744	$7,172
Park Improvements			$19,036	$99,226	$44,587
Master Plan/Local/USA		$6,173	$12,229	$5,000	
SDC Methodology				$12,000	$12,000
DED Master Plan/Grant/Loan				$7,775	
ODOT Grant - Trestle				$1,418,271	$1,100,000
St. Impr. CDBG Constr.			$88,915		
MSTIP/3 St. Projects			$44,735	$162,095	$449,607
County Match Exp.					
SCA St. Overlay 00/01				$25,000	$25,000
Commercial St. Overlay 97/98		$24,339			
Unappropriated Ending Balance	$110,491	$116,212	$117,454		
Total	$130,718	$203,714	$297,470	$2,216,542	$2,038,253

7.01.50 Traffic Impact Fees (T.I.F.) Fund

The T.I.F. fund was created in 1991 to clarify the accounting in the collection or disbursement of the traffic impact fees. Table 7-6 shows revenues, and Table 7-7 expenditures. The working capital balance for this fund has been growing as Traffic Impact Fees are collected for various land uses. As stipulated in Resolution 514, these funds are

reserved for roadways identified in Washington County Ordinance 379, as needed to increase capacity as a result of increased traffic volume. As such, these funds have not been spent, awaiting the preparation of this Transportation System Plan. As the working capital balance has grown, so has the income from interest off the balance.

TABLE 7-6
CITY OF NORTH PLAINS T.I.F. FUND REVENUES

	1998 Actual	1999 Actual	2000 Actual	2001 Adopted	2002 Adopted
Cash on Hand	5297,042	$392,861	$497,969	$521,000	$575,580
TIP- Residential	$79,568	$45,160	$10,050	$101,500	$45,200
TIP- Retail Commercia	$397	$34,334		$60,00	$60,000
TIP- Office				$30,000	$30,000
TIP- Industrial		$9,515		$100,000	$100,000
TIP- Institutional				$5,000	$10,000
TIP- Interest	$21,310	$22.267	$28,378	$15,000	$25.000
Total	**$398,318**	**$504,136**	**$536,397**	**$832,500**	**$845,780**

Source: City of North Plains

TABLE 7-7
CITY OF NORTH PLAINS T.I.F. FUND EXPENDITURES

	1998 Actual	1999 Actual	2000 Adopted	2001 Adopted	2002 Adopted
Payroll-Related	$5,458	$6,167	$11,397	$15,152	$16,340
Materials and Services			$560	$100,000	$100,000
Capital Expenses				$717.348	$729,440
Unappropriated Ending Balance	$392.861	$497,969	$524.441		
Total	**$398,318**	**$504,136**	**$11,957**	**$832,500**	**$845,780**

Source: City of North Plains

7.01.60 Transportation Revenue Outlook in the City of North Plains

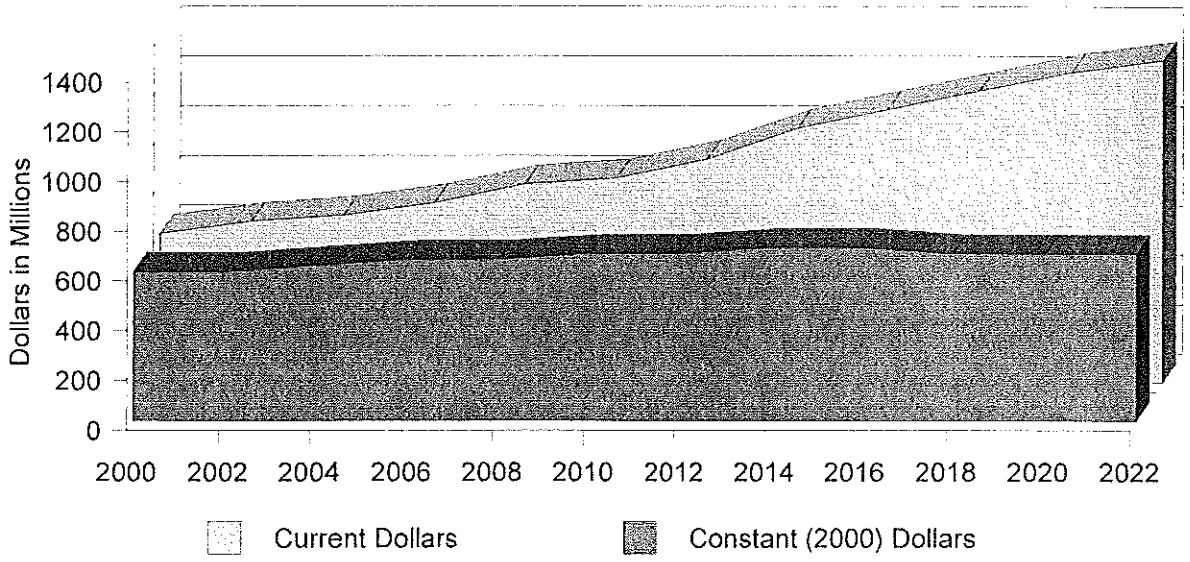
ODOT's policy section recommends certain assumptions in the preparation of transportation plans. In its *Financial Assumptions* document prepared in May 1998 with an update issued in April 2000, ODOT projected revenues for the state highway system. The estimates are based on not only the political climate, but also the economic structure and conditions, population and demographics, and patterns of land use. The latter is particularly important for state-imposed fees because of the goals in place under Oregon's Transportation Planning Rule (TPR) requiring a 10-percent reduction in per-capita vehicle miles of travel

(VMT) in Metropolitan Planning Organizations (MPO) areas by year 2015, and a 20-percent reduction by year 2025. This requirement will affect the 20-year revenue forecast from the fuel tax. ODOT recommends the following assumptions:

- Fuel tax increases of one cent per gallon per year (beginning in year 2002), with an additional one cent per gallon every fourth year;
- Vehicle registration fees would be increased by $10 per year in 2002, and by $15 per year in year 2012;
- Revenues will fall halfway between the revenue-level generated without TPR and the revenue level if TPR goals were fully met;
- Revenues will be shared among the state, counties, and cities on a "50-30-20 percent" basis rather than the previous "60.05-24.38-15.17 percent" basis; and
- Inflation occurs at an average annual rate of 3.1 percent (as assumed by ODOT).

Figure 7-1 shows the forecast in both current-dollar and inflation-deflated constant (1998) dollars. As highlighted by the constant-dollar data, the highway fund is expected to grow slower than inflation early in the planning horizon until fuel-tax and vehicle-registration fee increases occur in year 2002, increasing to a rate somewhat faster than inflation through year 2015, continuing a slight decline through the remainder of the planning horizon.

FIGURE 7-1
TOTAL HIGHWAY FUNDS AVAILABLE TO STATE (IN MILLIONS OF DOLLARS)



Source: ODOT Financial Assumptions.

As the state highway fund is expected to remain a significant source of funding for North Plains, the City is highly vulnerable to changes in the state highway fund. As discussed earlier, funds from the state highway fund provide a large proportion (over 50 percent excluding grant funds) of the revenues available to the city of North Plains' street fund. In order to analyze the City's ability to fund the future improvements from current sources, the following assumptions were applied:

- ODOT state highway fund assumptions as outlined above;
- The state highway fund will continue to account for the majority of the City's street fund;
- Interest and other local sources continue to provide stable revenue streams; and
- The proportion of revenues available for capital expenditures for street improvements will remain a stable, but small, proportion of the state tax resources.

North Plains has been seeking a UGB expansion which may result in accelerated population growth, development, SDC and payment in lieu of improvements fees, and corresponding maintenance requirements. For the purposes of this analysis, it is assumed that these increases will be overshadowed by observed levels of resources for capital outlay and other statewide forecasts dealing with the state highway fund. Based on the 1998 to 2000 average allocation level from the state highway fund to the City of North Plains, these assumptions were applied to estimate the future state highway fund allocation, as recommended by ODOT. State highway fund resources available to the North Plains for operations and maintenance purposes are estimated at approximately $72,000 to $77,000 annually (in constant 2000 dollars), as shown in Table 7-8.

TABLE 7-8
ESTIMATED RESOURCES AVAILABLE TO CITY OF NORTH PLAINS, 2000 DOLLARS

Year	Total Estimated Resources from State Highway Fund	Estimated Funds Available for Capital Outlay
2001	$73,798	$59,700
2002	$66,250	$63,400
2003	$66,300	$62,200
2004	$66,300	$62,200
2005	$66,300	$62,200
2006	$66,200	$62,200
2007	$66,300	$62,200
2008	$66,300	$62,200
2009	S66.300	$62.200
2010	$66,300	$62,200
2011	$66,300	$62,200
2012	$66,300	$62,200
2013	$66.300	$62.200
2014	$66,300	$62.200
2015	$66,300	$62,200
2016	$66,300	$62,200
2017	$66,300	$62.200
2018	$66.300	$62,200
2019	$66.300	$62,200
2020	$66,300	$62,200
2021	$66,300	$62,200
2022	$66,300	$62,200
2023	$66,300	$62,200
Total	$1,532,248	$1,429,300

The amount actually received from the state highway fund will depend on a number of factors, including:

- the actual revenue generated by state gasoline taxes, vehicle registration fees, and other sources; and
- the population growth in North Plains (since the distribution of state highway funds is based on an allocation formula which includes population, road miles, and other factors).

Using the amount of revenue income from Traffic Impact Fees (excluding interest) for 1998 through 2000, this analysis suggests that the city of North Plains will have between $60,000 and $63,000 available annually for capital improvements. Again, the estimates are based on the most recently observed data. Any future development, such as a UGB expansion, would dramatically affect both the need for improvements as well as the City's ability to fund those improvements.

7.02.00 REVENUE SOURCES

In order to finance the future transportation system improvements requiring expenditure of capital resources, it will be important to consider a range of funding sources. Although the property tax has traditionally served as the primary revenue source for local governments, property tax revenue goes into general fund operations, and is typically not available for road improvements or maintenance. Despite this limitation, the use of alternative revenue funding has been a trend throughout Oregon as the full implementation of Measures 5 and 47 have significantly reduced property tax revenues (see below). The alternative revenue sources described in this section may not all be appropriate in North Plains; however, this overview is being provided to illustrate the range of options currently available to finance transportation improvements during the next 20 years.

7.02.10 Property Taxes

Property taxes have historically been the primary revenue source for local governments. However, property tax revenue goes into general fund operations, and is not typically available for road improvements or maintenance. The dependence of local governments on this revenue source is due, in large part, to the fact that property taxes are easy to implement and enforce. Property taxes are based on real property (i.e.. land and buildings) which has a predictable value and appreciation to base taxes upon. This is as opposed to income or sales taxes, which can fluctuate with economic trends or unforeseen events.

Property taxes can be levied through: 1) tax base levies, 2) serial levies, and 3) bond levies. The most common method uses tax base levies, which do not expire and are allowed to increase by threesix percent per annum. Serial levies are limited by amounts and times they can be imposed. Bond levies are for specific projects and are limited by time based on the debt load of the local government or the project.

The historic dependence on property taxes has been changing since the passage of Ballot Measure 5 in the early 1990s. Ballot Measure 5 limits the property tax rate for purposes other than payment of certain voter-approved general obligation indebtedness. Under full implementation, the tax rate for all local taxing authorities is limited to $15 per $1,000 of assessed valuation. As a group, all non-school taxing authorities are limited to $10 per $1,000 of assessed valuation. All tax base, serial, and special levies are subject to the tax rate limitation. Ballot Measure 5 requires that all non-school taxing districts' property tax rate be reduced if together they exceed $10 per $1,000 per assessed valuation by the county.

If the non-debt tax rate exceeds the constitutional limit of $10 per $1,000 of assessed valuation, then all of the taxing districts' tax rates are reduced on a proportional basis. The proportional reduction in the tax rate is commonly referred to as compression of the tax rate.

Measure 47, an initiative petition, was passed by Oregon voters in November 1996. It is a constitutional amendment that reduces and limits property taxes and limits local revenues and replacement fees. The measure limited 1997-98 property taxes to the lesser of the

1995-96 tax minus 10 percent, or the 1994-95 tax. It limits future annual property tax increases to three percent, with exceptions. Local governments' lost revenue may be replaced only with state income tax, unless voters approve replacement fees or charges. Tax levy approvals in certain elections require 50 percent voter participation.

The state legislature created Measure 50, which retains the tax relief of Measure 47 but clarifies some legal issues. This revised tax measure was approved by voters in May 1997. The League of Oregon Cities (LOC) estimated that direct revenue losses to local governments, including school districts, totaled $467 million in fiscal year 1998, $553 million in 1999, increasing thereafter. The actual revenue losses to local governments will depend on actions of the Oregon Legislature. LOC also estimates that the state experienced revenue gains of $23 million in 1998, $27 million in 1999, and increase thereafter because of increased personal and corporate tax receipts due to lower property tax deduction.

Measure 50 adds another layer of restrictions to those which govern the adoption of tax bases and levies outside the tax base, as well as Measure 5's tax rate limits for schools and non-schools and tax rate exceptions for voter approved debt. Each new levy and the imposition of a property tax must be tested against a longer series of criteria before the collectible tax amount on a parcel of property can be determined.

7.02.20 System Development Charges

System Development Charges (SDCs) are becoming increasingly popular in funding public works infrastructure needed for new local development. Generally, the objective of systems development charges is to allocate portions of the costs associated with capital improvements upon the developments, which increase demand on transportation, sewer or other infrastructure systems.

Local governments have the legal authority to charge property owners and/or developers fees for improving the local public works infrastructure based on projected demand resulting from their development. The charges are most often targeted towards improving community water, sewer, or transportation systems. Cities and counties must have specific infrastructure plans in place which comply with state guidelines in order to collect SDCs. SDCs are collected when new building permits are issued. Transportation SDCs are based on trip generation of the proposed development. Residential calculations would be based on the assumption that a typical household will generate a given number of vehicle trips per day. Nonresidential use calculations are based on employee ratios for the type of business or industrial uses. The SDC revenues would help fund the construction of transportation facilities necessitated by new development. Like other Washington County cities, North Plains would use SDCs to fund capital improvements, specified in this TSP.

7.02.30 State Highway Fund

Gas tax revenues received from the state of Oregon are used by all counties and cities to fund road and road construction and maintenance. In Oregon, the state collects gas taxes, vehicle registration fees, over weight/ over height fines and weight/mile taxes and returns a

portion of the revenues to cities and counties through an allocation formula. Like other Oregon cities, the city of North Plains uses its state gas tax allocation to fund street construction and maintenance.

7.02.40 Local Gas Taxes

The Oregon Constitution permits counties and incorporated cities to levy additional local gas taxes with the stipulation that the moneys generated from the taxes will be dedicated to road-related improvements and maintenance within the jurisdiction. At present, only a few local governments (including the cities of Woodburn and The Dalles and Multnomah and Washington counties) levy a local gas tax. The City of North Plains may consider implementing a local gas tax as a way to generate additional road improvement funds. However, with the existing Washington County gas tax and relatively few jurisdictions exercising this tax, any cost differential between gas purchased in North Plains and gas purchased in neighboring communities may encourage drivers to seek less expensive fuel elsewhere. Any action will need to be supported by careful analysis to minimize the unintended consequences of such an action.

7.02.50 Vehicle Registration Fees

The Oregon vehicle registration fee is allocated to the state, counties and cities for road funding. Oregon counties are granted authority to impose a vehicle registration fee covering the entire county. The Oregon Revised Statutes would allow Washington County to impose a biannual registration fee for all passenger cars licensed within the county. Although both counties and special districts have this legal authority, vehicle registration fees have not been imposed by local jurisdictions. In order for a local vehicle registration fee program to be viable in Washington County, all the incorporated cities and the county would need to formulate an agreement which would detail how the fees would be spent on future road construction and maintenance.

7.02.60 Local Improvement Districts

The Oregon Revised Statutes allow local governments to form Local Improvement Districts (LIDs) to construct public improvements. LEDs are most often used by cities to construct localized projects such as streets, sidewalks or bikeways. The statutes allow formation of a district by either the city government or property owners. Cities that use LIDs are required to have a local LID ordinance that provides a process for district formation and payback provisions. Through the LID process, the cost of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation. The types of allocation methods are only limited by the Local Improvement Ordinance. The cost of LID participation is considered an assessment against the property which is a lien equivalent to a tax Hen. Individual property owners typically have the option of paying the assessment in cash or applying for assessment financing through the City. Since the passage of Ballot Measure 5, cities have most often funded LEDs through the sale of special assessment bonds.

7.03.00 GRANTS AND LOANS

There are a variety of grant and loan programs available, most with specific requirements relating to economic development or specific transportation issues, rather than for the general construction of new streets. Many programs require a match from the local jurisdiction as a condition of approval. Because grant and loan programs are subject to change and statewide competition, they should not be considered a secure long-term funding source. Most of the programs available for transportation projects are funded and administered through ODOT and/or the Oregon Economic Development Department (OEDD). Some programs that may be appropriate for the city of North Plains are described below.

7.03.05 Bike-Pedestrian Grants

By law (ORS 366.514), all road, street or highway construction or reconstruction projects must include facilities for pedestrians and bicyclists, with some exceptions. ODOT's Bike and Pedestrian Program administers two programs to assist in the development of walking and bicycling improvements: local grants, and Small-Scale Urban Projects. Cities and counties with projects on local streets are eligible for local grant funds. An 80 percent state/20 percent local match ratio is required. Eligible projects include curb extensions, pedestrian crossings and intersection improvements, shoulder widening and restriping for bike lanes. Projects on urban state highways with little or no right of way taking and few environmental impacts are eligible for Small-Scale Urban Project Funds. The programs are limited to projects costing up to $200,000. Projects that cost more than $200,000, require the acquisition of ROW, or have environmental impacts should be submitted to ODOT for inclusion in the STIP.

7.03.15 Access Management

The State Access Management Program sets aside approximately $500,000 a year to address access management issues. One primary component of this program is an evaluation of existing approach roads to state highways. These funds are not committed to specific projects. Priorities and projects are established by an evaluation process.

7.03.20 Enhancement Program

This federally-funded program earmarks $3 million annually for projects in Oregon. Projects must demonstrate a link to the intermodal transportation system, compatibility with approved plans, and local financial support. A 10.27 percent local match is required for eligibility. Each proposed project is evaluated against all other proposed projects in its region. Within the five Oregon regions, the funds are distributed on a formula based on population, vehicle miles traveled, number of vehicles registered and other transportation-related criteria.

7.03.25 Highway Bridge Rehabilitation or Replacement Program

The Highway Bridge Rehabilitation or Replacement Program (HBRR) provides federal funding for the replacement and rehabilitation of bridges of all functional classifications. A portion of the HBRR funding is allocated for the improvement of bridges under local jurisdiction. A quantitative ranking system is applied to the proposed projects based on sufficiency rating, cost factor, and load capacity. They are ranked against other projects statewide, and require state and local matches of 10 percent each. It includes the Local Bridge Inspection Program and the Bridge Load Rating Program.

7.03.30 Transportation Safety Grant Program

Managed by ODOT's Transportation Safety Section (TSS), this program's objective is to reduce the number of transportation-related accidents and fatalities by coordination of a number of statewide programs. These funds are intended to be used as seed money, funding a program for three years. Eligible programs include programs in impaired driving, occupant protection, youth, pedestrian, speed, enforcement, bicycle and motorcycle safety.

Every year, TSS produces a Highway Safety Plan that identifies the major safety programs, suggests countermeasures to existing safety problems, and lists successful projects selected for funding, rather than granting funds through an application process.

7.03.35 Federal Transit Administration (FTA) Section 5311-Non-urbanized Area Formula Program

Section 5311 is a federally sponsored program for general public transit services in small urban and rural areas. It supports both capital and operation needs. The ODOT Public Transit Division distributes these funds. The city of North Plains would be eligible for these funds if it implemented intercity service or intra-city services open to the general public. The recipient of these funds must provide matching funds of up to 50 percent for operating uses and up to 20 percent for capital expenses.

Section 531 I(f) - Part of 5311 funds is allocated to intercity services. Intercity transit services connect communities to rail, bus and air hubs. These funds can be used for both capital and operating expenses. Local revenues must match these funds. Match requirements are the same as those for 5311 funds.

7.03.40 Surface Transportation Program (STP) Funds

TEA-21, the Federal Transportation Efficiency Act for the 21st Century, that funds programs for highways and transit, permits surface transportation program funding flexibility between modes. This gives the state more latitude in selecting the modal alternatives that would best address local congestion problems. STP funds are generally limited to capital projects with

a few exceptions. They may be used for any roads not functionally classified as local roads or rural minor collectors. A 10.27 percent local match is required for eligibility. Projects are funded through inclusion in the STIP. The current STIP is the draft 2002-2005 ST1P, whose public comment period ran from February through March 2001. The current STIP contains over SI billion in projects and programs. Sources of funding include over $900 million in federal highway funds, $22 million in federal transit funds, and $180 million in state highway funds.

7.03.45 Department of Labor Welfare-to-Work Program

The US Department of Labor provides grants to communities to give transitional assistance to move welfare recipients into unsubsidized employment. One of the areas applicants are encouraged to consider is the development of responsive transportation systems to move people to work or to career training. These grants must serve at least 100 welfare recipients. The Department of Labor expects the grants to range from one million to five million dollars over a period of three years. Applications must be a coordinated effort between transportation providers and Oregon Adult and Family Services. The funding can be used for capital and operating expenses and will cover up to 50 percent of the cost of a program. ODOT has submitted a grant application for funding for Oregon programs. ODOT identified the Bend/Redmond area as the first demonstration program. Other areas of the state may be eligible after that. To be eligible for this funding, it is essential that communities bring together local ODOT staff, transit providers and AFS staff to begin the coordination process.

7.03.50 FTA Section 5310 Discretionary Grants

This program funds the purchase of vehicles and other capital projects for programs that serve elderly and disabled people.

7.03.55 Special Transportation Fund

The Special Transportation Fund (STF) awards funds to maintain, develop, and improve transportation services for people with disabilities and people over 60 years of age. Financed by a two-cent tax on each pack of cigarettes sold in the state, the annual distribution is approximately $5 million. Three-quarters of these funds are distributed on a per-capita formula to mass transit districts, transportation districts, where such districts do not exist, and counties. The remaining funds are distributed on a discretionary basis.

7.03.60 County Allotment Program

The County Allotment Program distributes funds to counties on an annual basis; the funds distributed in this program are in addition to the regular disbursement of state highway fund resources. The program determines the amount of total revenue available for roads in each

county and the number of road miles (but not lane miles) of collectors and arterials under each county's jurisdiction. Using these two benchmarks, a "resource-per-equivalent" ratio is calculated for each county. Resources from the $750,000 program are provided to the county with the lowest resource-per-equivalent road-mile ratio until they are funded to the level of the next-lowest county. The next-lowest county is then provided resources until they are funded to the level of the third-lowest county, and so on, until the fund is exhausted.

7.03.65 Immediate Opportunity Grant Program

The Oregon Economic Development Department (OEDD) and ODOT collaborate to administer a grant program designed to assist local and regional economic development efforts. The program was funded through state gas tax revenues to a level of S3 million per year for the 1999-2001 biennium and will be funded to $1 million per year for the 2001-2003 biennium. The following are primary factors in determining eligible projects:

- Improvement of public roads.
- Inclusion of an economic development-related project of regional significance.
- Creation or retention of primary employment.
- Ability to provide local funds (50/50) to match grant.
- Improvement to the quality of the community.

The maximum amount of any grant under the program is $500,000. Local governments which have received grants under the program include Washington County, Multnomah County, Douglas County, the City of Hermiston, Port of St. Helens, and the City of Newport.

7.03.70 Oregon Special Public Works Fund

The Special Public Works Fund (SPWF) program was created by the 1995 State Legislature as one of several programs for the distribution of funds from the Oregon Lottery to economic development projects in communities throughout the state. The program provides grant and loan assistance to eligible municipalities primarily for the construction of public infrastructure which support commercial and industrial development that result in permanent job creation or job retention. To be awarded funds, each infrastructure project must support businesses wishing to locate, expand, or remain in Oregon. SPWF awards can be used for improvement, expansion, and new construction of public sewage treatment plants, water supply works, public roads, and transportation facilities.

While SPWF program assistance is provided in the form of both loans and grants, the program emphasizes loans in order to assure that funds will return to the state over time for reinvestment in local economic development infrastructure projects. Jurisdictions that have

received SPWF funding for projects that include some type of transportation-related improvement include the cities of Baker City, Bend, Cornelius, Forest Grove, Madras, Portland, Redmond, Reedsport, Toledo, Wilsonville, Woodburn, and Douglas County.

7.03.75 Oregon Transportation Infrastructure Bank

The Oregon Transportation Infrastructure Bank (OTIB) program is a revolving loan fund administered by ODOT to provide loans to local jurisdictions (including cities, counties, special districts, transit districts, tribal governments, ports, and state agencies). Eligible projects include construction of federal-aid highways, bridges, roads, streets, bikeways, pedestrian accesses, and right of way costs. Capital Outlays such as buses, light-rail cars and lines, maintenance years and passenger facilities are also eligible.

7.03.80 Washington County Major Streets Transportation Improvement Program

Washington County is the process of developing a Major Streets Transportation Improvement Program (MSTIP 4) that would extend to the year 2011. The current schedule is that all the projects approved for the 1995 MSTIP 3 will be built by 2007. MSTIP 4 currently earmarks $12 million for transportation capital improvements within the City of North Plains.

7.04.00 ODOT FUNDING OPTIONS

The state of Oregon provides funding for all highway related transportation projects through the Statewide Transportation Improvement Program (STIP) administered by the Oregon Department of Transportation. The STIP outlines the schedule for ODOT projects throughout the state. The STIP, which identifies projects for a three-year funding cycle, is updated on an annual basis. Starting with the 2000 budget year, ODOT will then identify projects for a four-year funding cycle. In developing this funding program, ODOT must verify that the identified projects comply with the Oregon Transportation Plan (OTP), ODOT Modal Plans, Corridor Plans, local Comprehensive Plans, and TEA-21 planning requirements. The STIP must fulfill federal planning requirements for a staged, multi-year, statewide, intermodal program of transportation projects. Specific transportation projects are prioritized based on federal planning requirements and the different state plans. ODOT consults with local jurisdictions before highway related projects are added to the STIP.

The highway-related projects identified in North Plains' TSP will be considered for future inclusion on the STIP. The timing of including specific projects will be determined by ODOT based on an analysis of all the project needs within Region 1. The city of North Plains, Washington County, and ODOT will need to communicate on an annual basis to review the status of the STIP and the prioritization of individual projects within the project area. Ongoing communication will be important for the city, county, and ODOT to coordinate the construction of both local and state transportation projects.

ODOT also has the option of making some highway improvements as part of their ongoing highway maintenance program. Types of road construction projects that can be included within the ODOT maintenance programs are intersection realignments, additional turn lanes, and striping for bike lanes. Maintenance related construction projects are usually done by ODOT field crews using state equipment. The maintenance crews do not have the staff or specialized road equipment needed for large construction projects.

An ODOT funding technique that will likely have future application to North Plains' TSP is the use of state and federal transportation dollars for off-system improvements. Until the passage and implementation of ISTEA, state and federal funds were limited to transportation improvements within highway corridors. ODOT now has the authority and ability to fund transportation projects that are located outside the boundaries of the highway corridors. The criteria for determining what off-system improvements can be funded has not yet been clearly established. It is expected that this new funding technique will be used to finance local system improvements that reduce traffic on state highways or reduce the number of access points for future development along state highways.

7.05.00 FINANCING TOOLS

In addition to funding options, the future improvements listed in this plan may benefit from a variety of financing options. Although often used interchangeably, the words financing and funding are not the same. Funding is the actual generation of revenue by which a jurisdiction pays for improvements, some examples include the sources discussed above: property taxes, SDCs, fuel taxes, vehicle registration fees, LIDs, and various grant programs. In contrast, financing refers to the collecting of funds through debt obligations.

There is a number of debt financing options available to the city of North Plains. The use of debt to finance capital improvements must be balanced with the ability to make future debt service payments and to deal with the impact on its overall debt capacity and underlying credit rating. Again, debt financing should be viewed not as a source of funding, but as a time shifting of funds. The use of debt to finance these transportation-system improvements is appropriate since the benefits from the transportation improvements usually extend over a considerable period. If such improvements were to be tax financed immediately, a large short-term increase in the tax rate would be required. By utilizing debt financing, local governments are essentially spreading the cost burden of these improvements to more of the people who are likely to benefit from the improvements and lowering immediate payments.

7.05.10 General Obligation Bonds

General obligation (GO) bonds are voter-approved bond issues, which represent the least expensive borrowing mechanism available to municipalities. GO bonds are typically supported by a separate property tax levy specifically approved for the purposes of retiring debt. The levy does not terminate until all debt is paid off. The property tax levy is distributed

equally throughout the taxing jurisdiction according to assessed value of property. GO debts typically are used to make public improvement projects that will benefit the entire community.

State statutes require that the GO indebtedness of a city not exceed three percent of the real market value of all taxable property in the city. Since GO bonds would be issued subsequent to voter approval, they would not be restricted to the limitations set forth in Ballot Measures 5, 47, and 50. Although new bonds must be specifically voter approved, Measure 47 and 50 provisions are not applicable to outstanding bonds, unissued voter-approved bonds, or refunding bonds

7.05.20 Limited Tax Bonds

Limited tax general obligation (LTGO) bonds are similar to general obligation bonds in that they represent an obligation of the municipality. However, a municipality's obligation is limited to its current revenue sources and is not secured by the public entity's ability to raise taxes. As a result, LTGO bonds do not require voter approval. However, since the LTGO bonds are not secured by the full taxing power of the issuer, the limited tax bond represents a higher borrowing cost than GO bonds. The municipality must pledge to levy the maximum amount under constitutional and statutory limits, but not the unlimited taxing authority pledged with GO bonds. Because LTGO bonds are not voter approved, they are subject to the limitations of Ballot Measures 5, 47, and 50.

7.05.30 Bancroft Bonds

Under Oregon Statute, municipalities are allowed to issue Bancroft bonds, which pledge the City's full faith and credit to assessment bonds. As a result, the bonds become general obligations of the City but are paid with assessments. Historically, these bonds provided a city with the ability to pledge its full faith and credit in order to obtain a lower borrowing cost without requiring voter approval. However, since Bancroft bonds are not voter approved, taxes levied to pay debt service on them are subject to the limitations of Ballot Measures 5, 47, and 50. As a result, since 1991, Bancroft bonds have not been used by municipalities that were required to compress their tax rates.

7.06.00 FUNDING REQUIREMENTS

North Plains' TSP identifies capital improvements during the next 20 years to address safety and access problems and to expand the transportation system to support a growing population and economy. The TSP identifies 14 projects, totaling an estimated $4.1 million. Estimated costs by project are shown in Table 7-9.

TABLE 7-9
FUTURE PROJECTS

The following projects have been added to the list of projects included as part of Table 7-9 of the original TSP.

LOCATION	DESCRIPTION	APPROX. COST
Commercial Street - 313 Avenue to Main Street	Downtown Revitalization project. This includes improvements to sidewalks, parking areas, construction of curb extensions and crosswalks, and a traffic circle at the intersection of Commercial Street and Main Street.	$1,540,911.75
Main Street - Commercial Street to North Avenue	Improvements include the installation of curb and gutter with decorative sidewalks and street trees, installation of power lines underground and streetlights.	$1,243,171.00
	TOTAL	**$2,784,082.75**

Tables 7-9A and 7-9B represent the list of street connectivity and bicycle/pedestrian facilities projects by priority. These projects will be incorporated into the development of the City's Capital Improvement Plan.

TABLE 7-9A
STREET CONNECTIVITY PROJECTS (By Priority)*

PROJECT	FROM	TO	APPROXIMATE COST
Cottage	3 18"'	Gordon Road	$ 438,588.00
322nd	Pacific	Cottage	S 138,197.00
321SJ	Commercial	Cottage	$ 119,352.00
324th	Commercial	Cottage	$ 119,352.00
Lenox	Current termini	Timeric	$ 81,958.00
318th	Cottage	Pacific	$ 138,197.00
Highland	313m	314th	$ 142,878.00
Wascoe	313m	Main	S 198,076.00
Pacific	Current termini	City Limits	$ 168,012.00
		TOTAL	$1,544,610.00

* Costs shown in the table above do not include landscaping, utilities or right-of-way.

TABLE 7-9B
BICYCLE/PEDESTRIAN FACILITIES PROJECTS (By Priority)

LOCATION	DESCRIPTION	APPROX. COST
North Avenue (Gordon Road to Glencoe Road)	2,200 feet of 5 feet AC sidewalk	$ 77,000.00
Main Street (Commercial Street to Pacific Street)	4,800 feet of 5 feet concrete sidewalk	$ 168,000.00
Glencoe Road (Cottage Street to North Avenue)	2,700 feet of 5 feet concrete sidewalk	$ 94,500.00
Commercial Street/West Union Road (Main Street to East City limits)	13,500 feet of 5 feet minimum concrete sidewalk	$ 455,000.00
Gordon Road (Commercial Street to North Avenue)	2,800 feet of 5 feet concrete sidewalk	$ 98,000.00
Pacific Street (Main Street to 307th Avenue)	5, 400 feet of 5 feet concrete sidewalk	$ 189,000.00
31 1th Street (Hillcrest Street to Pacific Street)	2,800 feet of 5 feet concrete sidewalk	$ 98,000.00
309ffi Street (North Avenue to Hillcrest Street)	1,600 feet of 5 feet concrete sidewalk	$ 56,000.00
Lenox Street (Timeric Street to 300 feet west)	600 feet of 5 feet concrete sidewalk	$ 21,000.00
	TOTAL	**$1,256,500.00**

The City of North Plains expects to be able to fund projects up to approximately SI.4 million over the 20-year planning horizon. Given the existing cost estimates shown in Table 7-9, the resources available as estimated in Table 7-8, North Plains is expected to experience a funding deficit of over $2.7 million over the 20-year planning period, as shown in Table 7-10.

TABLE 7-10
ESTIMATED CAPITAL FUNDING BALANCE

	Amount
Capital Available from Existing Revenue Sources	$1,429,300
Capital Needed to Fund Projects Identified	$4.129,542
Surplus (Deficit)	($2.700.200)

Some of these projects may, however, be eligible for alternative funding sources. For example, the improvements to the ramps onto Highway 26 serve to enhance the functionality of the state highway system. As such, ODOT may wish to consider these highway-related projects during their system planning. State funding of the two groups of improvements to the ramps serving Highway 26 totaling nearly $3.5 million, would enable the City to focus its resources on other remaining projects.

In discussions with ODOT, an alternative option for dealing with improving the traffic flow at the Glencoe Road at Highway 26 has been mentioned. The alternative option is to construct a new interchange to more appropriately address traffic needs for the area. The cost of engineering design and construction of a new interchange is estimated at $12 million. Implementation of this project would replace the other proposed projects to the interchange estimated at $3.5 million. The preferred alternative to the City of North Plains would be to utilize the $12 million to construct a new interchange in addition to the other projects on Glencoe Road that are needed to mitigate future transportation impacts.

A possible funding strategy for the City of North Plains would be the pursuit of federal, state, and county funding for specific improvement projects. Toward this end, the City has submitted 8 projects to Washington County for MSTIP funding. These projects are as follows:

- Extension of Cottage Street, 318th Avenue to Gordon Road
- Construction of sidewalks, narrowing of pavement with landscaping and installation of landscaping on Commercial Street, Glencoe Road to Main Street
- Extension of Pacific Street east across McKay Creek

- Installation of traffic signals at Glencoe Road and Highland Court
- Installation of traffic signals at Glencoe Road and Commercial Street
- Realignment of Glencoe Road between Cottage Street and Commercial Street

In addition to County funds for these projects and possible state funding for the ramps onto Highway 26, several of the projects serve to enhance the pedestrian and bicycle connectivity of the City, making them potentially eligible for bike and pedestrian funding. These projects include the addition of bike lanes on both sides of US 26 at Glencoe Road (both eastbound and westbound), the sidewalks and bike lanes on Highland Court at Glencoe Road, the sidewalks and bike lanes on Pacific Street at Glencoe Road, and Commercial Avenue at Glencoe Road.

APPENDIX A
REVIEW OF PLANS AND POLICIES

TRANSPORTATION SYSTEM PLAN
CITY OF NORTH PLAINS REVIEW OF PLANS AND POLICIES

INTRODUCTION

The City of North Plains is a rural residential community located in western Washington County on the western fringe of the Portland metropolitan area. Platted in 1910, the community was incorporated in 1963. In 1999 North Plains had an estimated population of 1,755 residents.

This report provides a summary after reviewing the following documents:

- North Plains Neighbor City Study
- North Plains Comprehensive Plan.
- Work Tasks 1, 2, and 3, North Plains Periodic Review
- Portland-Cannon Beach Junction (US 26) Corridor Plan
- Sunset Highway Interchange Study
- 1999 Oregon Highway Plan
- Washington County Transportation Plan
- City of Hillsboro Transportation System Plan
- 1999 Regional Transportation Plan (Metro)

NORTH PLAINS NEIGHBOR CITY STUDY

This project was a joint project between North Plains, Metro, ODOT and DLCD with Washington County participation. The overall purpose of the North Plains Neighbor City Study was to:

- Identify the amount, location, and development patterns as well as the consequences of growth of the City of North Plains.
- Provide tools to address concerns with where and how much growth might be accommodated in North Plains consistent with its vision for the future and its relationship with the Metro region, including Washington County, and in compliance with Statewide Planning goals, statutes and rules.

The following planning principles were used to guide policy and plan development in the North Plains Neighbor City Study:

- Jobs to Housing - There will be a balance between jobs and housing in North Plains. The jobs-to-housing ratio will be selected by North Plains, but coordinated with Metro and Washington County. The type and amount of commercial and industrial lands planned will reflect the jobs-housing balance and local economic strategies.
- Rural Reserves - Permanent areas will be preserved between North Plains and the metropolitan area (and between North Plains and other neighboring cities) to serve as buffers between urban areas and established rural areas or areas of very low-density zoning.
- Green Corridors - The connecting highway between the Metro area and North Plains will be planned as "Green Corridor". The corridor will be planned as high performance, multi-modal transportation facilities, where access is tightly controlled and development pressures are minimized.
- Compact Urban Growth - North Plains will create a land use plan that illustrates a compact urban growth. It will be defined by North Plains but coordinated with Metro, Washington County and the State.
- Urban Design Guidelines - The following urban design guidelines will be followed to help maintain and enhance community identity and livability:
- Planned residential densities within North Plains Neighboring City Study will be denser than existing residential densities.
- Mixed-used zoning will be used to encourage pedestrian, bicycle and transit use, linking of trips, and to meet local retail and services needs.
- The downtown area will be preserved and enhanced as the focal point for the city.
- Parks and open spaces will be provided throughout the City. Plans will provide for schools and parks to serve each neighborhood.
- The plan will promote a sense of place that is a development pattern that reflects the community's values and vision of the future.
- A connected street pattern will be planned in order to foster choices for travel by foot, bike, auto and transit.

In general, the project objectives were:

- To recognize that a planning perspective that is consistent with the North Plains Vision will be the best alternative to confronting the challenges of growth in North Plains.
- To acknowledge that North Plains will be substantially influenced by growth and growth policies within the Metro region, including Washington County, and will need to establish greater control over its own future growth and destiny.
- To identify possible methods of implementing the policies of Metro's 2040 Growth Concept and RUGGOS in neighboring cities.
- To identify methods of addressing the impacts of growth on North Plains, Washington County and Metro.
- To identify land use and transportation methods or tools that can accommodate the projection of growth to the year 2015.

- To determine the amount and location of growth in North Plains that can meet Statewide Goal 14 and other applicable Goals, statues and rules.
- To determine the feasibility of providing the full range of urban services to serve future growth.
- To identify a conceptual land use and transportation plan accommodating the growth in a manner which:
- Provides for job-housing balance
- Minimizes commuter traffic between North Plains and Metro
- UGB provides for compact urban growth
- Preserves the most valuable farm lands
- Preserves local identity
- Retains a rural reserve between North Plains and Metro
- UGB improves local tax base
- To foster a better relationship and level of coordination between North Plains, Washington County, and Metro.

The study contained a town plan, and an outline of the steps required for implementation. The Policy Advisory Committee (PAC) agreed on the following criteria for evaluating alternative growth scenarios, with an understanding that the objectives are general, and can include several compatible points of view. The agreement was that the preferred growth direction outside the City would be to the north and east, as shown on the Town Plan.

Each alternative plan evaluated provided for approximately the same population and employment, as well as a balance between jobs and housing. The population projections for the study were 3,000 (year 2015), and 7,600 (year 2040). The study assumed that there would be a balance between new housing and jobs at a ratio of 1.2 jobs, on average, per household.

Points of Agreement

Plan for Compact Growth

- Mixes use opportunities may add to the housing capacity inside the City.
- Present zoning should be maintained with amendments to increase residential densities in key areas, encourage mixed-use development, ensure efficient use of the land supply within the City, and promote compatible development within the City's urban growth boundary.
- Increases in residential densities inside the city are appropriate in several key locations to promote housing variety and afford-ability. Priority areas to focus on are the town center, Commercial Avenue, Main Street, Glencoe Road mixed use corridor, western redevelopment opportunity area, and mixed-use nodes and centers of new neighborhoods.
- The need to expand the urban growth boundary may be delayed if proposed redevelopment strategies are successful.

- There was agreement that the City of North Plains, Washington County, and Metro should consider using intergovernmental agreements (IGAs) to establish areas of mutual interest, and coordination procedures for carrying out the study recommendations.

Recognize the Need for Urban Expansion, and Plan Accordingly

- The study concluded that additional acres outside the City may be needed to accommodate new housing, parks, and public/institutional uses during the next 20 years.
- Commercial or industrial land needs are based upon floor-area ratios of 0.4 for commercial lands and 0.3 for industrial lands. Additional land may be needed if sustained development falls short of these ratios.
- Any new development outside the City should be planned in complete neighborhoods, either singularly or in conjunction with adjacent areas.
- The preferred growth direction outside the City is to the north and east, as shown on the Town Plan.
- The preferred growth direction assumes a case can be made for not including "exception" lands (located south of the City) in areas planned for urbanization.

Points of Concern and Issues for Further Study

The Town Plan was unanimously approved by the PAC after public comment, with the following key concerns and refinements noted:

Population Forecast

- The 2040 population forecast should be reviewed for consistency with countywide analysis, and acceptance by the North Plains area community. The study revealed a range of citizens' concerns with the 2040 analysis (7,600 residents). While some PAC members viewed the forecast as being too low, others felt that it might be too high. Representatives of CPO #8 and others expressed that the forecast would make North Plains too large, resulting in unacceptable impacts to agricultural lands. Washington County did support the study's 2015-population projection (3,000 residents), but did not agree to the study's 2040-population projection (7,600 residents). The County was concerned that regional discussions to date do not provide sufficient technical and policy basis to allocate population beyond the year 2017.

Statewide Goal Compliance

- Complete statewide goal findings must be made to amend the City's comprehensive plan. A key concern is the conversion of agricultural lands to urban use.
- The amount of land needed for housing should be reviewed for compliance with new statutes related to housing needs. The study included a preliminary analysis of housing needs.

Highway 26

- A key concern is the need for safety improvements at the intersection of Highway 26 and Jackson School Road.

Pacific Avenue

- The feasibility of extending Pacific Avenue to the east, as envisioned by the Town Plan, should be evaluated for environmental impacts and cost. This is an important connection and part of the rationale for selecting an eastern growth direction. If a street proved to be infeasible, a pedestrian and bicycle connection should be evaluated.

Property Owner Support

- Some property owners on the City's fringe expressed that they do not want to be included in the future urbanization plans.

Town Plan Refinements

- The alternatives analysis described refinements to the Town Plan map recommended by the PAC, after public comment. Key issues to consider include the size and configuration of remnant farmland, and proximity of development to Jackson School Road to the east and Pumpkin Ridge Golf Club to the north.

SUMMARY

The main outcome of this study was that it helped to facilitate discussion and form partnerships among the various stakeholders who will influence the future of North Plains. The study provided the following:

- The 20-year population and employment analysis, buildable lands inventory, and land needs projections provide valuable baseline information for a comprehensive plan update.
- The evaluation of infill development, public facilities, and alternative growth directions will assist the City in considering urban expansion.
- The proposed town plan and implementation steps can be used as a framework for updating the City's 20-year comprehensive plan.
- The baseline information and preliminary rationale will assist in making goal findings to support local adoption of the town plan.

NORTH PLAINS COMPREHENSIVE PLAN

While maintaining its small town character, the citizens and elected officials of North Plains look to continued growth and prosperity. To this end, the City embarked on a comprehensive land use planning process designed to:

- Address the statewide planning goals of the Land Conservation and Development Commission (LCDC).
- Encourage orderly and coordinated urban growth, and provide urban level services in an efficient and economic manner.
- Enhance community livability and encourage economic expansion.
- Reserve the community's character and natural resources for future generations.

The City of North Plains has seen many changes lately and has decided to create the following Vision Statement as a document for:

- Taking a pro-active approach to controlling their own destiny by creating a new community identity with projections to the Year 2040.
- Improving their ability to obtain their fair share of future growth and economic development by expanding their jurisdictional boundaries, where appropriate.
- Enhancing the livability of and encouraging pride in the community by stressing the city's unique character. To include, but not limited to, the agricultural/forest products/railroad legacy, and pioneer heritage of North Plains.
- This vision statement is to provide guidance to the City for interpreting and amending the Comprehensive Plan and Zoning and Development Ordinance. This Vision Statement is intended to provide guidance for approval of individual land use decisions.

In 1983, the City amended its zoning code to significantly increase housing opportunities by:

- Expanding the definitions of "Dwelling Unit" to include prefabricated housing constructed to Uniform Building Code specifications and "manufactured home parks to include manufactured home subdivisions"
- Permitting manufactured home parks or subdivisions in the R5 as well as R2.5 zones
- Adopting a planned unit development (PUD) ordinance that permits greater flexibility in dwelling siting, design and construction

The City is currently served by the Burlington Northern Railroad four to five times a day. The Hillsboro Airport that is operated by the Port of Portland is within 5 miles of the City.

Under section 15.02.105 the transportation system objectives are:

1. To provide a system of road and other forms of transportation which link each part of the community into a unified whole, and one which will safely, efficiently, and economically move traffic to and through the area when it is fully urbanized.
2. Development should occur in such a manner as to encourage and facilitate pedestrian movements.
3. City street improvements should be a priority and a better maintenance program should be developed.
4. Alternative modes of transportation, in addition to the automobile, should be encouraged and promoted.

Under Objective 2, the policies are:

- The City of North Plains shall consider bikeways as a transportation alternative in future roadway planning. Bikeways on major and minor arterials and collector streets will be given highest priority for transportation related paths.
- The City of North Plains shall encourage development of bikeways that connect residential areas to activity areas such as the central Town Square.
- The City of North Plains shall encourage development of subdivision designs that include bike and footpaths that interconnect neighborhoods and lead to schools, parks, and other activity areas.
- The City will ensure access for bicyclists to and from Highway 26.
- The City will provide safe pedestrian access to schools, parks, and shopping to make walking a realistic alternative to driving within the City.

For objective 3, the policies are:

- The City will promote adequate transportation linkages between residential, commercial and industrial use areas. This will be done through street improvements, new streets, marked turning lanes, warning signs and/or speed reduction. Problems identified in the plan are of first priority.
- The City will require developers to aid development of the roadway system by dedication or reservation of needed rights-of-way and by adopting setbacks and other required standards that will keep buildings from interfering with future road improvements.
- The City will require applicants for development in the North Plains urban area to construct streets within and serving the development to City standards including curbs, gutter, sidewalk and drainage facilities.
- New land developments will be encouraged to reduce the percentage of land devoted to streets.
- Local streets in residential neighborhoods shall include trees and landscaping to achieve a pleasant visual effect.
- The City will cooperate with ODOT in the implementation of the Statewide Transportation Improvement Program.

Under objective 4, the policy establishes that the City will support efforts to secure mass transit system.

PORTLAND-CANNON BEACH JUNCTION (US 26) CORRIDOR PLAN

A corridor plan is a long-range (20-year) program for managing transportation systems that move people, goods and services within a specific transportation corridor. While many modes of transportation and transportation facilities are not owned or operated by the state (i.e. railroads, transit systems, port facilities), the state has a special interest in their performance given their interaction with ODOT facilities and collective significance to the statewide transportation system.

The purpose of the Corridor Plan is to establish both short and long-term management direction for all modes of transportation in the corridor and to make major transportation tradeoff decisions. Management objectives address the corridor as whole, as well as specific sites and transportation improvements. The Corridor Plan also identifies priorities and timing for the various actions and responsible public agencies and other service providers.

Key elements of the Corridor Plan include:

- Description of existing and future conditions for all modes in the corridor
- Forecasts of future available funding for transportation projects in the corridor
- Summary of existing state, regional and local policy direction and analysis of its compliance or consistency with the Corridor Plan
- Future vision for management of each element of the corridor's transportation system
- Corridor Plan objectives that define the policy direction for all modes in the corridor, as well as for several functional issues such as connectivity, congestion, environmental and energy impacts
- Solutions or implementation program comprised of proposed projects, strategies and other actions to be taken to implement the Corridor Plan objectives
- Prioritization of improvement projects based upon scenarios of anticipated available funding
- Detailed information and mapping for all projects

Implementation of the Portland-Cannon Beach Corridor Plan will occur over many years. During that time, it will be necessary to update and revise the Plan to reflect changing conditions and policy direction or to better achieve Plan objectives. Corridor Plan objectives call for maintaining a corridor-wide advisory group to assist ODOT in periodically prioritizing management solutions, reviewing local government transportation system plans for conformance with the Corridor Plan, and assisting in updating the Corridor Plan as needed. Refinement planning will also occur to address outstanding environmental land use or

other issues. Agency and public input will be solicited during refinement planning and Corridor Plan updates.

The Portland-Cannon Beach Corridor (Figure 1) serves both urban and rural transportation needs. Though multi-modal, the corridor is dominated by auto use on US Highway 26, which is part of the National Highway System. US 26 is one of two major tourist routes to the north coast and also provides the primary access from Portland to the Tillamook area through its connection to OR Highway 6.

The Corridor as whole is significant to the state of Oregon for many reasons. It connects the state's largest urban area with the Oregon Coast, a major recreational destination. It promotes economic development both within and outside the urban area by providing access to markets and promoting tourism, a very important industry at the west end of the Corridor. The Corridor also passes through difficult topography and environmentally sensitive areas, the needs of which must be balanced with the need to maintain access. In addition, the Corridor contains several rural community centers, such as Manning, Elsie, and Jewell Junction. These areas depend to a large extent on tourist traffic, lodging and truck freight traffic for their livelihoods, but want to maintain their unique rural character.

Key Management Direction

The Corridor Plan includes a series of objectives, strategies and projects to enhance the Corridor's ability to serve commuter, recreational, and freight travel between Portland and Cannon Beach Junction. Consistent with OTP objectives to promote a balanced multi-modal transportation system, the Corridor Plan promotes transportation demand management (TDM) and system management (TSM) strategies as the first course in addressing future needs, especially within the urban portion of the Corridor. These TDM and TSM strategies include the development of support facilities for transit and other non-motorized modes, as well as retaining railroad and air services as an effective means of transport.

Another overall theme is cost-efficiency. With limited capital improvement and maintenance dollars available, ODOT must stretch its revenues as far as possible. This is accomplished in the Corridor by combining projects for a single mode into multimodal projects where possible. For example, combining bicycle shoulder improvement projects with highway widening and passing lane projects benefits bicycles, pedestrians, and the movement of truck freight, as well as autos. This allows the implementation of bicycle projects that would not be cost-effective as stand-alone projects. To the greatest extent possible, projects identified that improve transportation balance in the Corridor are pursued through maintenance, operations, management, and service projects that minimize capital expense.

Other key management direction includes:

- **Relieve congestion.** This is addressed by capacity expansion in the urban area pursuant to the Regional Transportation Plan and by construction of limited improvements, e.g. climbing and passing lanes, in the rural areas. These approaches are appropriate given existing and proposed traffic volumes and environmental sensitivity.
- **Support use of alternative modes of transportation.** Transit, bicycle and pedestrian modes play a major role in the urban area, while in the rural areas these modes have a smaller role. Transit can make a significant difference in the demand for highways in the urban area. Given the distances between community centers in the rural portion of the Corridor and the low traffic volumes, transit's role is more limited. Projects identified provide opportunities for transit service to be increased outside the urban area as market demand warrants.
- **Access Management.** In the urban portion, grade separated interchanges manage the flow of traffic on and off of US 26. In rural areas, access management can preserve the rural residential character of community centers by providing a safer pedestrian and bicycling environment, as well as managing the flow of auto traffic through the area.
- **Economic Development.** In the urban portion, the focus is on moving raw materials into the region and finished goods to port facilities, railroads, and trucks for shipment to markets. This is accomplished by maintaining capacity on the highway system and managing demand. In the rural area, the highway provides access to recreational and tourist destinations that fuel the local economies. In addition, the highway and railroads move raw materials, such as logs and aggregate, from the forested portions of the Corridor. In the rural areas, passing and climbing lanes maintain travel times to assure that access is preserved.
- **Develop transportation facilities appropriate to the surrounding environment.** Controlled access freeways in the urban area are appropriate, given the character of the area and tremendous travel demand. However, such an approach in the rural areas is not warranted and would not be cost-effective when environmental impacts are considered. A number of projects considered were generated by ODOT needs analyses that brought all substandard portions of US 26 up to standard. This does not take into account the Coast Range and concomitant grades or the presence of natural and cultural resources. Many of these projects were either eliminated or scaled back in recognition of their enormous expense and environmental impacts.
- **Land Use Coordination.** In all areas of the Corridor, the Plan supports and strengthens the connection between land use and transportation facilities and programs. In the urban area, the RTF proposes a series of high density "centers" connected by highways and transit. At the urban fringe, Metro's Green Corridor policy establishes policies for development adjacent to the urban growth boundary, including for the area between the UGB and North Plains. In rural areas, city and county comprehensive plans are the guiding land use documents. The Corridor Plan is careful in all instances to support applicable land use laws and policy in the Corridor.

Approach to Key Issues

Congestion and travel times in the urban area are expected to increase even if high levels of improvements are applied. Costs of highway improvements are enormous compared to the time savings. Consequently, Corridor Plan solutions emphasize:

- Support for TSM and TDM measures, reducing SOV trips, limited capacity expansion (6 through lanes), reliance on transit, and improvements to the city and county streets networks for intracity trips (Cornell, Walker, West Union and Cornelius Pass).
- Completion of the road projects as part of the Westside LRT (Phase 3 Sylvan to Camelot and Highway 217 to Camelot widening of US 26) and the widening of US 26 from Highway 217 to Murray Boulevard.
- Widening of US 26 to 185th Avenue within the 20-year planning horizon.
- Improvement to existing interchanges (Cornelius Pass and Shute Road) and development of over crossings (143rd, 173rd/174th and 235th).

Glencoe Interchange and Jackson School Road intersection improvements are included both in Metro's RTP and the Corridor Plan. The Glencoe interchange is a phased development designed to accommodate urban traffic rather than local demand. Phase 1 improvements are targeted to the eastbound movement to US 26. Phase 2 improvements would reconstruct the interchange, including a wider overcrossing permitting left turn storage, bicycle lanes and sidewalks. Jackson School Road intersection improvements are a safety issue. Phase 1 improvements are to the at-grade intersection; an interchange would be constructed in phase 2.

To address the lack of rural transit services, the Corridor Plan proposes development of a public/private partnership to provide transit service between the outlying communities in the Corridor and Westside LRT station and regional transit system in Hillsboro. The Corridor Plan also recommends intercity bus service for the Corridor that may also include recreation/tourist service directly from Portland Airport to the coast.

To help limit the growth of truck freight within the Corridor, the Corridor Plan supports expanded freight movement by rail, particularly bulk commodities such as aggregate, forest and agricultural products.

Expansion of freight movement by rail is expected to limit the overall growth in truck freight movement. However, there will be an increase in future truck traffic as the "Tillamook Burn" comes on line for harvesting. Some of this traffic will travel to intermodal port facilities on the coast, as well as to Portland.

SUNSET HIGHWAY INTERCHANGE STUDY

The study was completed by DKS Associates in August 1998 and was located along US 26 between 185th Avenue and Glencoe Road in Hillsboro, unincorporated Washington County and North Plains. There are currently four interchanges and one at-grade intersection within the study area, with the at-grade intersection planned as an interchange in the future.

According to the study, the following improvements are planned in or near the study area:

- Closure of Oregon Electric Railroad south of US 26 just east of Cornelius Pass Road interchange and removal of train trestle over US 26
- Cornelius Pass Road Interchange Improvement: Improve interchange to facilitate traffic flows on and off of US 26 (RTP Project List-Round 2, "preferred")
- Build new diagonal ramps in NE and SE quadrants , add ramp meter storage at Cornelius Pass interchange
- Improvements to interchange currently out for bid-includes lengthening and widening of ramps to and from the east, moving eastbound ramp meter signal to provide additional vehicle storage, traffic signal at eastbound ramps
- Shute Road/Cornell Corridor: Improve primary access route from regional center to US 26.
- Installation of an eastbound right turn deceleration lane on US 26 at Jackson School Road
- Street lighting project at Jackson School Road (ODOT completed this project)

Jackson School Road Interchange

For purposes of this study, the Jackson School Road interchange area was defined as the intersection of US 26/Jackson School Road and the segments of Jackson School Road within approximately 1,000 feet of the interchange on either side (i.e. to the north and south of US 26).

The US 26/Jackson School Road intersection currently consists of an at-grade intersection with stop sign control for the northbound and southbound approaches as well as for the eastbound and westbound left turn movements (there is an area in the median to store turning vehicles). The intersection currently operates at LOS F during both the morning and evening peak periods. The poor level of service at this intersection is due primarily to the very high traffic volume both eastbound and westbound on US 26.

Jackson School Road/US 26 is the 62nd highest accident location in Washington County for 1994-1996 (one fatality, two severe injuries, 13 moderate injuries and eight minor injuries in a three-year period), based on Washington County's SPIS List.

The following table summarizes intersection levels of service for existing and 2015 (without improvements) scenarios.

Intersection Level of Service Existing and 2015 (without improvements)

Period Existing	LOS V/C	2015 LOS V/C
AM Peak	E/F	F/F
PM Peak	C/F	F/F

Planned Improvements

The following improvement is planned in the vicinity of the proposed project:

- Installation of an eastbound right turn deceleration lane on US 26

The Washington County Transportation Plan does not include any other programmed improvements in the immediate area near the proposed site. ODOT conducted and Environmental Assessment for a proposed interchange at this location in 1987. Channelization improvements at this location are included in the Draft RTP and an interchange at this location is included in the Draft Hillsboro Transportation System Plan. ODOT already owns right-of-way adjacent to the existing Jackson School Road/US 26 intersection, intended for use in construction of an interchange.

The failure in capacity is caused by the following impacts:

- At grade left turns at this location (any direction) will not operate at an acceptable level of service, nor would they be safe, due to the high traffic volume and high speeds on US 26 (eastbound and westbound). Growth in traffic between now and 2015 exacerbates this problem.
- Safety is a major concern due to high speeds and high volumes on US 26, any permitted left turns or crossing movements at-grade create safety concerns.
- For right turning traffic, adequate deceleration and acceleration lanes should be provided.
- Bicycle and pedestrian access at this interchange will be extremely difficult in the future, due to high traffic speeds and volumes on US 26.

At this intersection the nearest access points are located approximately 200 feet (Victory Lane, to the south) and 300 feet (farm access driveway, to the north) from US 26. Both are low volume roadways and beyond these access points, it is well over 1,000 feet to the next access point, both north and south.

Alternatives

Several alternatives were considered for intersection/interchange options at this location. Safety is a major concern and was considered for each of the alternatives. Also, preservation of access was a concern since this interchange provides access to employment, Hillsboro, North Plains and private land holdings. Since the Hillsboro Regional Center is the only one not directly served by a freeway, maintaining multiple points of access from US 26 (a filter system) is important. Without the filtering system for access, the regional center development could be impacted.

The following alternatives were forwarded for further study:

Alternative 1. Construct interchange in standard diamond configuration - This alternative is a standard diamond interchange configuration that adequately addresses traffic needs at this location well into the future. Every potential turn movement is serviced and safety concerns are nearly eliminated. In the future (year 2015), traffic signals are not warranted at the ramp intersection with Jackson School Road. The concern with this alternative is that it is expensive since it requires an overcrossing structure and four new interchange ramps. There is no reasonable phasing for this alternative since the overcrossing structure is necessary prior to any other portion of the interchange.

Alternative 2. Only allow right turn movements. Prohibit all left turn movements and northbound and southbound through movements - This alternative only allows right turns on and off US 26. All left turns and north/south through movements are prohibited. This is the only feasible short term alternative (not requiring an overcrossing structure) in terms of safety. The permission of other through or left turn movements increases the potential for conflicts due to high speeds and high volumes on US 26. However, the provision of the westbound left turn movement should be considered in any further evaluation of the alternative. This is the highest volume movement that would be impacted by this option. Addressing this movement in some fashion reduces the impact to other interchanges. This alternative creates a significant impact (out-of-direction travel) to those vehicles that currently use this intersection and a potential impact for farm vehicles using this access to cross US 26.

Order of magnitude cost estimates was developed for each of the alternatives that were selected to be forwarded for further study. These cost estimates are intended for comparing alternatives and should be further refined when a preferred alternative is selected. The following table summarizes these costs.

Order of Magnitude Cost Estimates (1998 Dollars) Alternative Cost

Alternative	Cost
1	$8M
2	$300 K

Glencoe Road Interchange

For purposes of this study, the Glencoe Road interchange area was defined as the intersection of US 26/Glencoe Road and the segments of Glencoe Road within approximately 1,000 feet of the interchange on either side (i.e. to the north and south of US 26), including Glencoe Road and Glencoe Road/Highland Court.

The Glencoe Road interchange consists of a two lane overcrossing with on and off ramps in a diamond configuration. There is a traffic signal at the westbound ramps intersection and the eastbound off-ramp is controlled by a stop sign (north/south movements are uncontrolled at this location). This interchange is regularly used as part of a route linking US 26 with Forest Grove (via Glencoe Road, Zion Church Road, and ORE 47).

The following is a list of existing deficiencies/needs:

- Existing intersection level of service is B at the westbound ramps for both the AM and PM peak hours. At the eastbound ramps the major street left/minor street lefts operate at A/E in the AM peak and A/F in the PM peak. The key issue at this location is the heavy volume of southbound traffic.
- Traffic signal warrants are currently met at Glencoe Road/US 26 eastbound ramps for AM peak hour.
- 75-foot northbound left turn lane is currently warranted on Glencoe Road at the US 26 westbound ramps.
- 300-foot southbound left turn lane is currently warranted on Glencoe Road at the US 26 eastbound ramps.
- A northbound right turn lane is warranted at the eastbound ramps.
- The existing gas station in the southeast quadrant of the interchange area operates very close to the public right-of-way, creating a safety concern due to access movements.
- Neither westbound ramps nor eastbound ramps are listed on Washington County's list of high accident locations (SPIS List).
- A sidewalk is only provided along the east side of the overcrossing structure and no bike lanes are provided.

Planned Improvements

No planned or programmed improvements in the immediate area near the proposed site have been identified.

Future Deficiencies/ Needs

- Traffic signal warrants are met at Glencoe Road/US 26 eastbound ramps for both AM and PM peak hours in 2015

- 350 foot Southbound left turn lane will be warranted in 2015 on Glencoe Road at the US 26 eastbound ramps
- Dedicated northbound right turn lane is needed at the eastbound ramps
- North Plains land use forecast (1994-2015) included an increase in households from 960 to 1,530 (+570) and an increase in employment from 610 to 730 (+120). Also, an additional 75 acres of industrially zoned land was added into the forecast (recently annexed into the UGB and City)

Alternatives

Several alternatives were considered at this location. Serving left turning traffic (from Glencoe Road) at both the westbound and the eastbound ramps was determined to be a priority since turn lane warrants are met today and the lack of these turn lanes is a safety issue. Otherwise trying to improve capacity without large cost was considered.

The following alternatives were forwarded for further study:

Alternative 1. Widen structure to include northbound and southbound left turn lanes, install traffic signal at eastbound ramps. Install dedicated northbound right turn lane at eastbound ramps. Extend southern approach to provide adequate grades. Close first access on Glencoe Road north of interchange. This alternative consisting of the widening and/or reconstruction of the overcrossing structure to include left turn lanes northbound and southbound, is the most logical long-term solution for this interchange. It mitigates identified safety issues and provides sufficient capacity well into the future. However, it is expensive, and other improvements may need to be considered to improve operations in the short term.

Alternative 2. Install dedicated (free) **northbound right turn lane at eastbound ramps (interim improvement).** This alternative provides a dedicated "free" northbound right turn lane at the eastbound ramps. This is an interim improvement that provides adequate capacity for both intersections in both the short and long term, however, it does not address the safety issue created by the lack of left turn lanes northbound and southbound at the westbound and eastbound ramps, respectively.

Alternative 3. Construct traffic signal at eastbound ramps (interim improvement). This alternative provides a traffic signal at the eastbound ramps as a short-term improvement A temporary traffic signal could be installed for relatively low cost. This improvement provides adequate level of service in the short term, but does not address the safety issue created by the lack of left turn lanes northbound and southbound at the westbound and eastbound ramps, respectively.

Short-term improvements could be made at this interchange for relatively low cost until such time as funding is available for the preferred alternative (#1). It is likely that the first action would be the construction of a temporary traffic signal at the eastbound

ramps since it is relatively low cost and would provide operational benefits for several years to come. The next short-term improvement would likely be the construction of a northbound "free" right turn lane at the eastbound ramps. This improvement would require modification of access at the Arco site; however, it could be constructed at its ultimate alignment.

Order of magnitude cost estimates was developed for each of the alternatives that were selected to be forwarded for further study. These cost estimates are intended for comparing alternatives and should be further refined when a preferred alternative is selected. The following table summarizes these costs.

Order of Magnitude Cost Estimates (1998 Dollars)

Alternative	Cost
1	$4M
2	$500 K
3	$200 K

Areas For Further Study

Several areas for further study have been identified through the course of this study. Those pertinent to the Glencoe Road interchange follow:

- Ramp metering the eastbound on-ramp
- Small park and ride facility near interchange
- Improved connectivity of the US 26/Dersham Road interchange (west of Glencoe) with county road system serving Forest Grove, reducing impact at Glencoe of the US 26/Glencoe/Zion Church/Martin access route.
- Need to extend westbound off-ramp right turn lane (better North Plains access, addresses long queue caused by Forest Grove bound traffic)

1999 OREGON HIGHWAY PLAN

The 1999 Oregon Highway Plan emphasizes the following:

- Efficient management of the system to increase safety, preserve the system and extend its capacity.
- Increased partnerships, particularly with regional and local governments.
- Links between land use and transportation.
- Access management.
- Links with other transportation modes.
- Environmental and scenic resources.

The plan has three main elements: the Vision, the Policy Element, and the System Element.

The Vision represents a vision of the state highway system in the future, summarizes the impacts of economic and demographic forecasts and technologies on highway transportation, and defines the policy and legal context. Oregon's population will grow during the next 20 years, and the total number of vehicle miles traveled will increase with population; however, the rise in vehicle miles traveled per capita which occurred in the 1980s has been moderating as employment growth has moderated and automobile ownership approaches saturation.

The Policy Element contains policies and actions under goals for System Definition, System Management, Access Management, Travel Alternatives, and Environmental and Scenic Resources.

Goal 1. System **Definition:** To maintain and improve the safe and efficient movement of people and goods, and contribute to the health of Oregon's local, regional, and statewide economics and livability of its communities.

Goal 2. System Management: To work with local jurisdictions and federal agencies to create an increasingly seamless transportation system with respect to the development, operation, and maintenance of the highway and road system that:

1. Safeguards the state highway system by maintaining functionality and integrity.
2. Ensures that local mobility and accessibility needs are met.
3. Enhances system efficiency and safety.

Goal 3. Access Management: To employ access management strategies to ensure safe and efficient highways consistent with their determined function, ensure the statewide movement of goods and services, enhance community livability and support planned development patterns, while recognizing the needs of motor vehicles, transit, pedestrians and bicyclists.

Access Spacing

Access control is necessary in the vicinity of an interchange to promote safe operations. The need for access control in the study area is determined based on ODOT and Washington County standards. The ODOT standards for access control where interchange ramps terminate at a crossroad are currently 1,320 feet past the end of the radii on both sides of the road. Washington County's standards access spacing for various street classifications is summarized below.

Washington County Access Spacing

Functional Classification	Required Access Spacing (feet)
Major Arterial	1,000
Minor Arterial	600
Major Collector	150
Minor Collector	50
Local	10

Goal 4. Travel Alternatives: To optimize the overall efficiency and utility of the state highway system through the use of alternative modes and travel demand management strategies.

Goal 5. Environmental and Scenic Resources: To protect and enhance the natural and built environment throughout the process of constructing, operating, and maintaining the state highway system.

The System Element begins with an analysis of 20-year state highway needs. It lays out investment strategies for taking care of highway needs and describes an implementation plan for the Highway Plan's goals, policies and actions.

Expressways

According to ODOT, Highway 26 is classified as an Urban Expressway in the westbound direction and as a Rural Expressway in the eastbound direction. Expressways are complete routes or segments of existing two-lane and multi-lane highways and planned multi-lane highways that provide for safe and efficient high speed and high volume traffic movements. "Expressway" refers to the kind and number of accesses allowed on a highway segment. It does not refer to the ownership of access rights.

The primary function of an Expressway is to provide for interurban travel and connections to ports and major recreation areas with minimal interruptions. A secondary function is to provide for long distance intra-urban travel in metropolitan areas. In urban areas, speeds are moderate to high. In rural areas, speeds are high. Usually there are no pedestrian facilities, and bikeways may be separated from the roadway.

Some of the design characteristics of an expressway are:

- Private access is discouraged
- Traffic signals are discouraged in rural areas
- Non-traversible medians are encouraged
- Parking is prohibited

- Within urban growth boundaries, bicycle lanes, if any, are accommodated on shoulders or separated facilities

Being classified as an Expressway affects a state highway's mobility standards, access management standards, location of highway segment designations, design and funding. The level of local government review and involvement in the Expressway designation process depends upon whether the highway is an Interstate, Statewide, Regional or District Highway.

Land Use and Transportation

The Land Use and Transportation Policy addresses the relationship between the highway and patterns of development both on and off the highway. It emphasizes development patterns that maintain state highways for regional and intercity mobility and compact development patterns that are less dependent on state highways than linear development for access and local circulation.

The overall goal and focus of the Land Use and Transportation Policy is to connect land use and transportation in a way that achieves long-term objectives for the state highway and the local community. In applying the policy, ODOT will recognize the regional and topographical differences of communities throughout Oregon.

ODOT acknowledges that the best way to implement the policy is to establish cooperative working relationships with local governments. This includes a commitment on ODOT's part to:

- Participate actively, early, and continuously in the development of transportation system plans and periodic review.
- Look for creative and innovative transportation and land use solutions to transportation problems.
- Work within the context of acknowledged land use plans and zoning.
- Support planning and implementation of improvements within centers and Special Transportation Areas, including off-system improvements that benefit operation of the state highway system.

The policy recognizes that:

- Local governments are responsible for planning and zoning land uses within their jurisdictions and for developing and managing the local transportation system.
- ODOT is responsible for developing and managing the state highway system.
- ODOT and local and regional governments must work collaboratively to achieve accessibility and mobility goals for a balanced transportation system.

WASHINGTON COUNTY TRANSPORTATION PLAN

The primary purposes of this Plan are to identify the type of transportation system needed to meet the travel needs of Washington County residents and businesses through the year 2005 and to establish policies to guide system development. The County is currently working on a Transportation System Plan. The following are the general policies established in the Plan:

- Mobility Policy: To provide a transportation system that maximizes the mobility of Washington County residents and businesses.
- Efficiency Policy: To seek the greatest efficiency of movement possible for Washington County residents and businesses, in terms of travel time and distance, and efficient management of the transportation system.
- Safety Policy: To maintain and improve transportation system safety.
- Equity Policy: To ensure the cost of transportation facilities and services are borne by those who benefit from them.
- Environmental Policy: To limit and mitigate adverse environmental impacts associated with traffic and transportation system development through facilities design and system management.

Improvement of the streets and highway system is vital to meet the travel needs of existing and future residents and businesses in Washington County and achieve the County's land use and economic development goals. Following are the streets and highway element policies:

- Streets and Highway Capacity Policy: To ensure that the roadway system capacity is sufficient to accommodate the travel demands of County residents and businesses.
- Highway Safety Policy: To provide a roadway system that is safe for motorists, pedestrians and bicyclists.
- Functional Classification Policy: To ensure the roadway system is designed and operates efficiently through use of a roadway functional classification system. As part of this policy, the County uses the following classification system:
  Regional arterials: Freeways and Principal routes
  Major Arterials
  Minor Arterials
  Major Collectors
  Minor Collectors
  Local Streets

- Truck Route Policy: To identify and designate a through truck route system utilizing arterial and major collector roads.
- Road jurisdiction Policy: To retain jurisdiction of a county wide road system that serves major intra- and inter-county travel movements.

Although the County and other local jurisdictions participate in regional decisions affecting transit development and planning, Tri-Met has primary responsibility for transit planning and service in Washington County. Following is the transit policy:

- to provide a transportation system which offers cost effective alternatives to the automobile and to encourage a land use pattern that supports transit.

Demand management is another strategy to address the problem of traffic congestion. Demand management techniques concentrate on reducing the number of vehicles on the road rather than building new or wider roadways. Following is the County's demand management policy:

- To encourage implementation of demand management programs which reduce the number of single occupant vehicle trips and which shift traffic to off-peak travel hours.

This Plan recognizes that bicycles and pedestrian facilities serve transportation functions and are viable components of the County's transportation system. Following is the bicycle and pedestrian policy:

- To provide opportunities for the safe and efficient use of pedestrian and bicycle facilities as an alternative to motorized travel and for recreational purposes.

1999 REGIONAL TRANSPORTATION PLAN

From a cursory review of the 1999 Regional Transportation Plan, the following elements were found to relate to the transportation issues in North Plains:

- Cornelius Pass Road Improvements (2000-2005): Widening of Cornelius Pass Road to five lanes between US 26 and West Union Road. This project also will include sidewalks and bike lanes to improve safety.
- Jackson School Road Improvements (2000-2005): Reconfigure the intersection at US 26 to improve safety. This project restricts turn movements and crossing intersection travel.

- Evergreen Road Improvements (200-2005): Widen the street to three lanes from Glencoe Road to 15th Avenue. This project also will include sidewalks and bike lanes to improve safety.
- The Existing and Planned Regional Bikeways map (figure 3.2) shows Highway 26 and Glencoe Road in the vicinity of North Plains as missing links.
- Highway 26 between North Plains and Portland has been designated as green corridor. Green corridors were adopted as part of the 2019 Growth Concept. They are designated in rural areas where state-owned highways connect neighbor cities to the metro area. The purpose of green corridors is to prevent unintended urban development along these often heavily traveled routes, and maintain the sense of separation that exists between neighbor cities and the Metro region. The green corridor concept calls for a combination of access management and physical improvement to limit the effects of urban travel on the routes on adjacent rural activities.

In several corridors, Metro has already developed inter-governmental agreements (IGAs) with local governments to address access management issues. However, IGAs are not in place in most corridors, and physical improvements, such as street and driveway closures, landscaping and public signage have not been implemented in any green corridors. During the next several years, Metro will continue to work with ODOT and affected local jurisdictions to complete IGAs for the remaining green corridors, and develop plans for necessary improvements. Such improvements should be incorporated into future updates of the RTF.

CITY OF HILLSBORO TRANSPORTATION SYSTEM PLAN

The City of Hillsboro Transportation System Plan (TSP) Goals and Policies consist of seven goals with related policies organized under each goal. Goals were developed which should reflect community needs and values for many years. The goals are simple, brief guiding statements regarding transportation. The policies focus on how goals will be met by describing the types of actions that will contribute to achieving the goal. The goals of the TSP are as follows:

- Goal 1: Safety. Develop and maintain a safe City transportation system.
- Goal 2: Multi-modal Travel. Provide a balanced City transportation system.
- Goal 3: Trip reduction. Develop a transportation system that helps to reduce the number of motor vehicle trips and contributes to regional goals to reduce per capita vehicle miles of travel.
- Goal 4: Performance. Provide an efficient transportation system that manages congestion.
- Goal 5: Goods movement. Provide for efficient movement of goods and services.

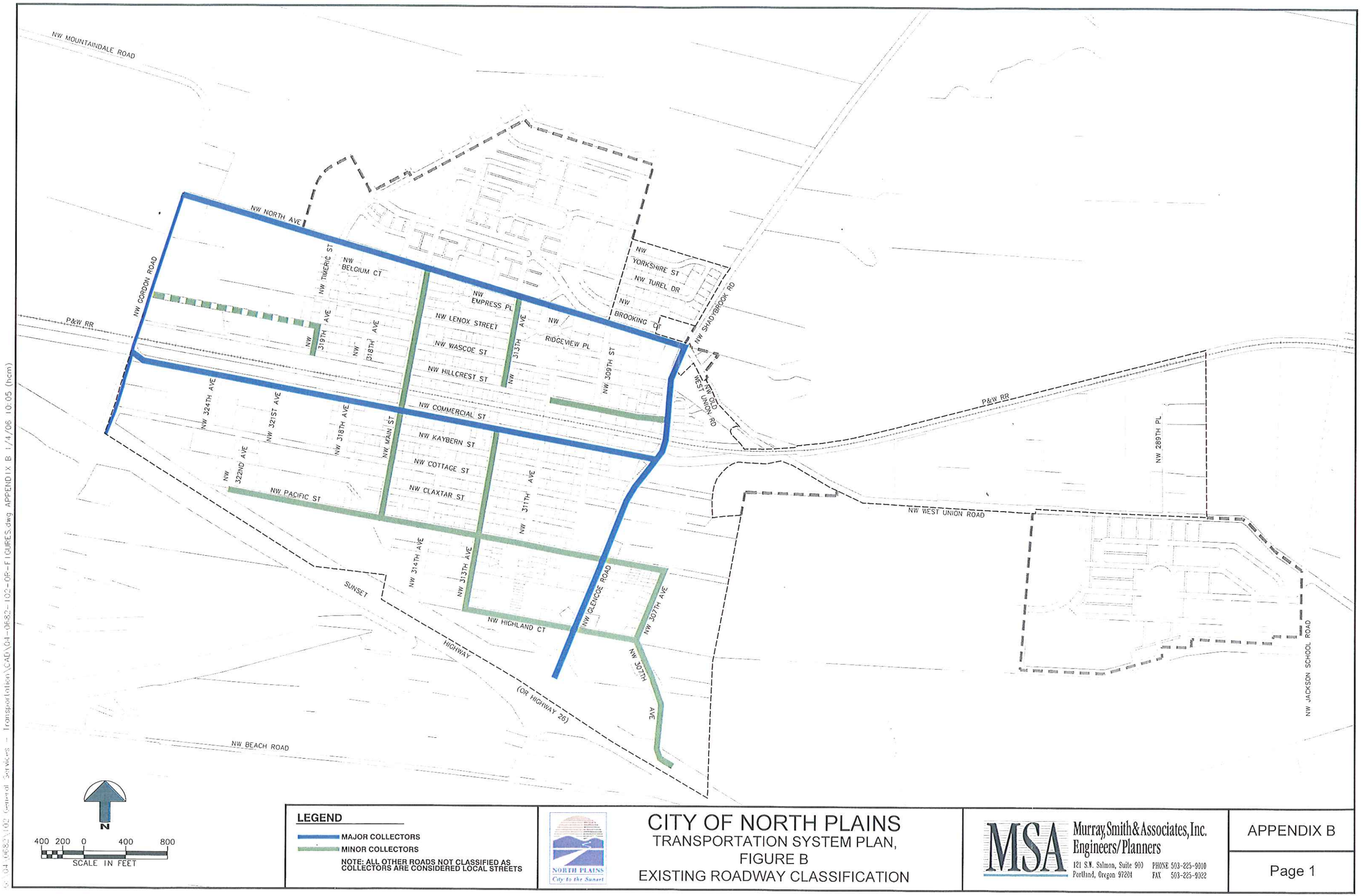
- Goal 6: Livability. Transportation facilities within the City shall be designed and constructed in a manner that enhances livability of Hillsboro.
- Goal 7: Accessibility. Develop transportation facilities that are accessible to all members of the community and minimize out-of-direction travel.

As a consequence of these goals the following are the transportation projects that could have an effect on the transportation system within the City of North Plains:

- Jackson School Road at Highway 26: this channelization/safety project is ranked among the highest priority projects. It calls for access management strategies from Highway 26 to Evergreen Road. In addition, the construction of an interchange is included among the third highest priority projects. This intersection is also a future site for a park and ride.
- Evergreen Road (Glencoe Road to 15th Avenue): this project includes widening the Evergreen Road to three lanes.
- Glencoe Road (1st Avenue to Evergreen Road): This portion of Glencoe Road is proposed to be widened to three lanes.
- Highway 26 at Shute Road: This project is included among the second highest priority projects to include a new loop ramp and interchange modifications. This intersection is also a future site for a park and ride.
- Highway 26 at Cornelius Pass Road: This project is also included as part of the second highest priority projects to build new diagonal ramps in NE and SE Quadrants, and adding ramp meters storage.
- Glencoe Road, Evergreen Road and Highway 26 are also designated as a truck route in the Hillsboro TSP.
- Glencoe Road, Jackson School Road, West Union Road and Evergreen Road are classified as arterials according to the City of Hillsboro functional classification plan.
- Glencoe Road at Evergreen Road intersection is included in the traffic signals master plan to convert it to a signalized intersection.
- Glencoe Road and Jackson School Road at Jacobsen Road are also included in the traffic signals master plan to be converted to signalized intersections. The West Union Road at Helvetia Road is also included as part of the signals master plan.

APPENDIX B

INVENTORY OF NORTH PLAINS TRANSPORTATION SYSTEM



LEGEND

MAJOR COLLECTORS

MINOR COLLECTORS

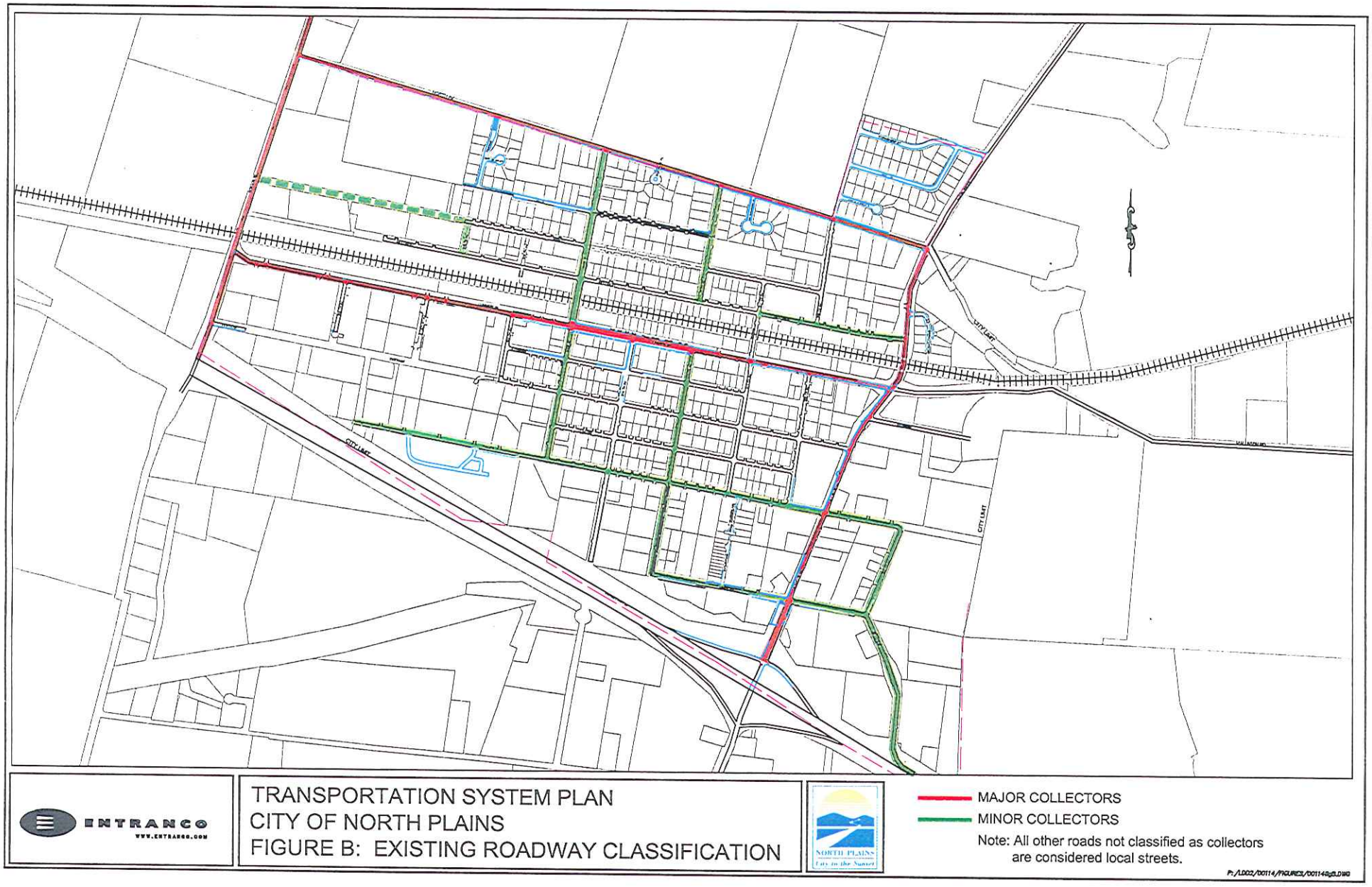
NOTE: ALL OTHER ROADS NOT CLASSIFIED AS COLLECTORS ARE CONSIDERED LOCAL STREETS

CITY OF NORTH PLAINS

TRANSPORTATION SYSTEM PLAN, FIGURE B
EXISTING ROADWAY CLASSIFICATION

Murray, Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 Portland, Oregon 97204
PHONE 503-225-9010 FAX 503-225-9022

APPENDIX B



ENTRANCO
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TRANSPORTATION SYSTEM PLAN
CITY OF NORTH PLAINS
FIGURE B: EXISTING ROADWAY CLASSIFICATION

NORTH PLAINS
City in the Sunset

MAJOR COLLECTORS
MINOR COLLECTORS

Note: All other roads not classified as collectors are considered local streets.

P:/L002/00114/FIGURES/00114B.DWG

APPENDIX C

EXISTING INTERSECTIONS LEVEL OF SERVICE

INTERSECTION	CONTROL TYPE [1]	AM PEAK		PM PEAK	
		DELAY[2] (SEC/VEH)	LOS[3]	DELAY[2] (SEC/VEH)	LOS[3]
U.S 26 EB Ramps/Glencoe Road	TWSC	265.3	F	81.1	F
U.S 26 WB Ramps/Glencoe Road[4]	Signal	61%	C	77%	D
Highland Court/Glencoe Road	TWSC	31.1	D	36.9	E
Pacific Street/Glencoe Road	TWSC	11.2	B	18.6	C
Commercial Street/Glencoe Road	AWSC	10.7	B	11.2	B
North Ave/Glencoe Rd/Shady Brook Rd	TWSC	13.7	B	10.7	B
Pacific Street/Main Street	TWSC	8.7	A	8.8	A
Commercial Street/ Main Street	TWSC	9.7	A	11.2	B
North Avenue/Main Street	TWSC	10.9	B	9.2	A
Commercial Street/Gordon Road	TWSC	9.5	A	9.4	A
North Avenue/Gordon Road	TWSC	9.0	A	9.0	A
Shady Brook Road/Yorkshire Street	TWSC	8.7	A	9.1	A
North Avenue/309th Avenue	TWSC	9.8	A	9.6	A

Notes:

1. **AWSC = All way stop controlled intersection, TWSC = Two way stop controlled intersection, Signal = Signalized intersection**
2. Control delay, measured in seconds per vehicle, is a measure of all the delay contributable to traffic control measures, such as stop signs. At AWSC Intersections, the delay reported is the average of the control delay experienced for all the movements. At TWSC intersections. She reported delay is tor only one movement, the movement experiencing the worst control delay, which is typically one of the stop-controlled side street approaches. The control delay reported for TWSC intersections is not a valid indication of the operations at the entire intersection.
3. **LOS is the level of service; a concept based on the 1997 Highway Capacity Manual for unsignalized and signalized intersections.**
4. **LOS at the US 26 WB Ramps/Glencoe Road is based on calculations performed by Sigcap 2 and on the critical v/c ratios, not on delay. The value listed in the table is the saturation value and assumes a population of less than 20,000.**

APPENDIX D

MAPS & CHARTS

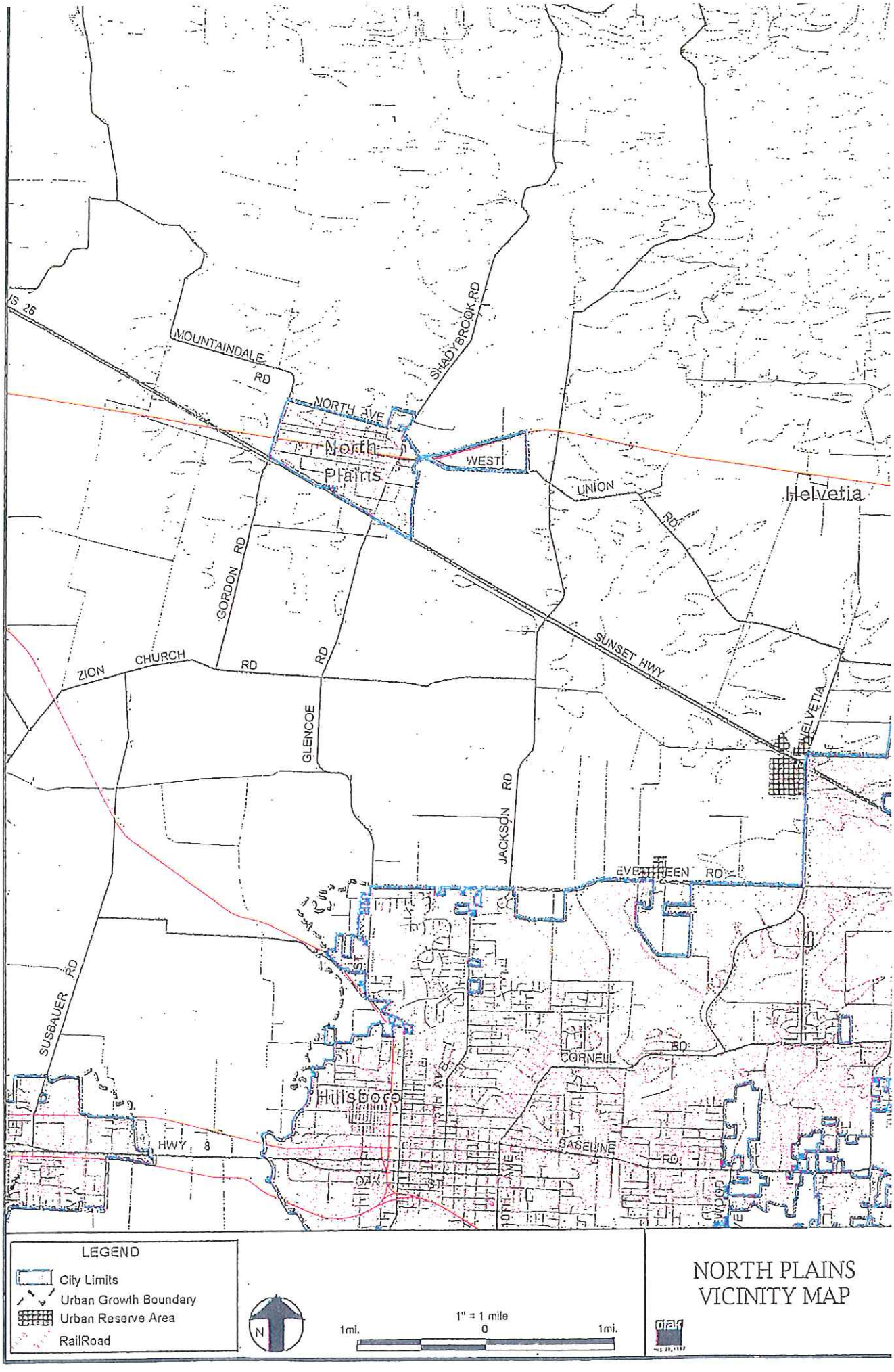
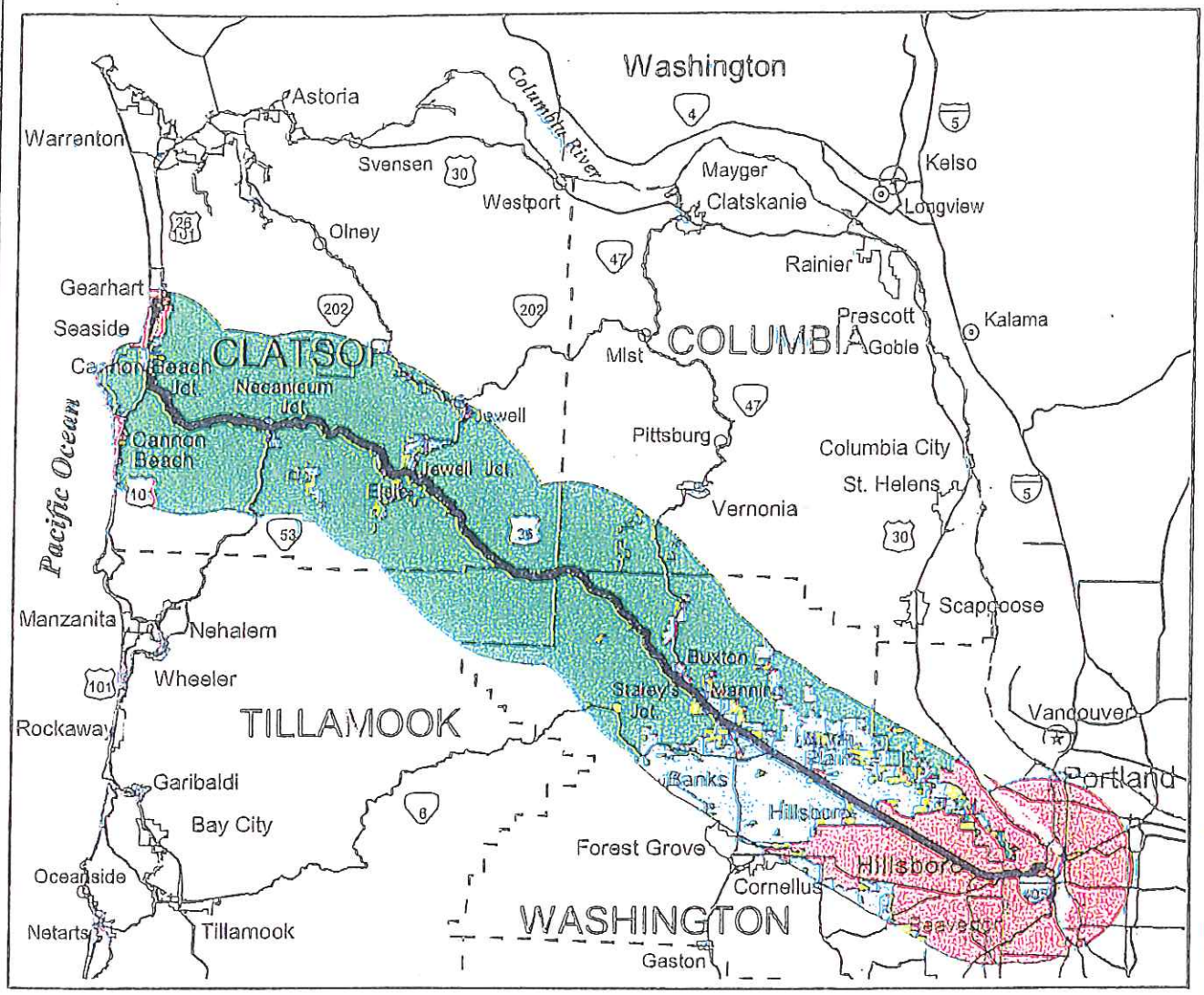

S 26
MOUNTAINDALE RD
SHADY BROOK RD
NORTH AVE
North Plains
WEST
UNION RD
Helvetia
GORDON RD
ZION CHURCH RD
GLENCOE RD
SUNSET HWY
HELVETIA
JACKSON RD
EVERGREEN RD
SUSBAUER RD
CORNELL RD
Hillsboro
HWY 8
SAGELINE RD
OAK ST
LEGEND
City Limits
Urban Growth Boundary
Urban Reserve Area
RailRoad
N
1" = 1 mile
1mi.
0
1mi.
NORTH PLAINS
VICINITY MAP

Figure 1: Corridor Vicinity Map

Existing Conditions



Legend:

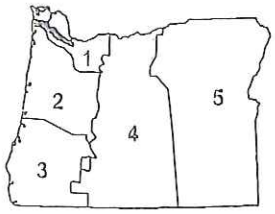
- Interstate Highway
- US Highway
- State Highway
- US Highway 26
- Urban Growth Boundaries

Zoning & Land Use

- Urban
- Rural Community Centers
- Forestry
- Natural Resource
- Agriculture
- Park and Recreation / Public Facility

N

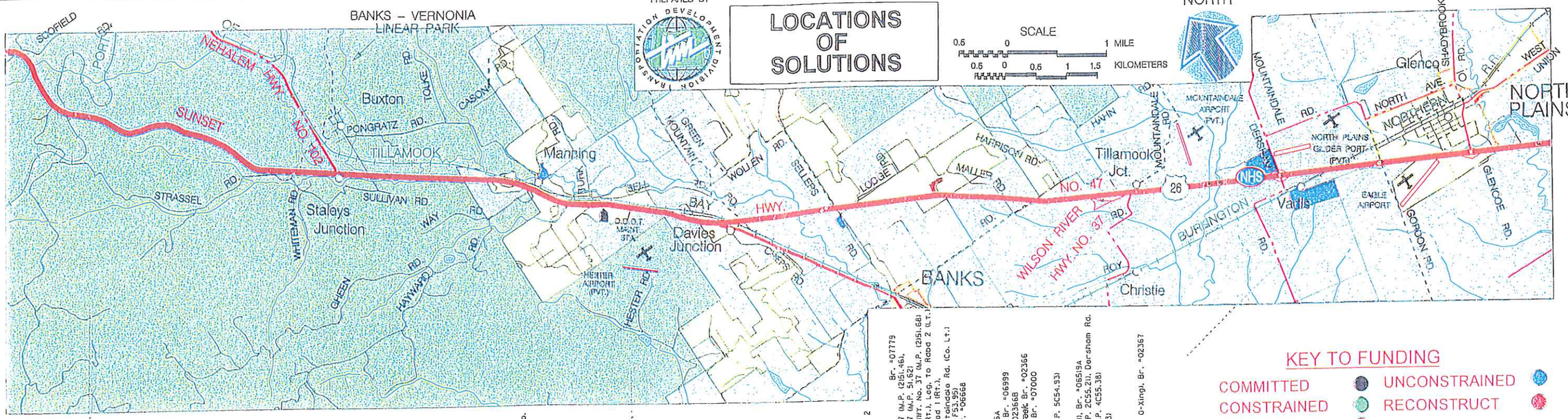
4 0 4 8 Miles



Corridor Location

PREPARED BY TRANSPORTATION DEVELOPMENT DIVISION

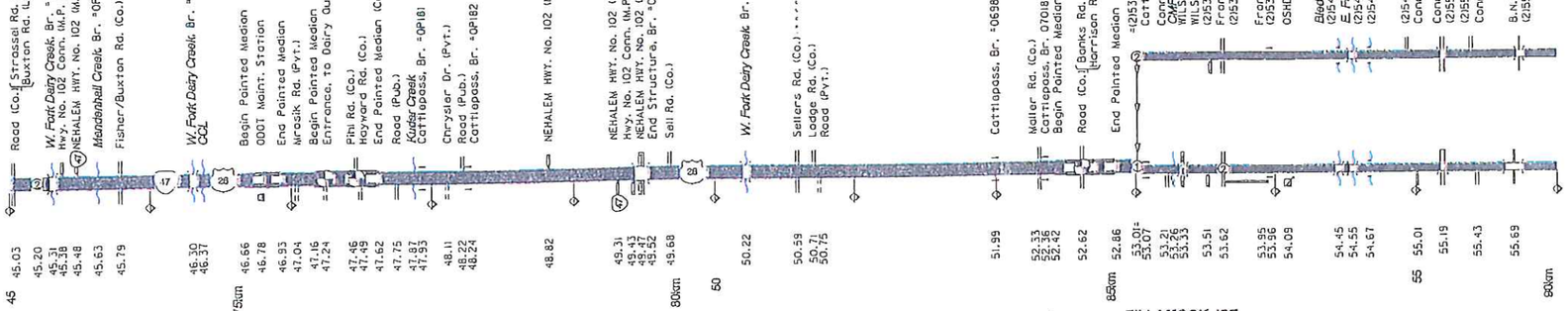
LOCATIONS OF SOLUTIONS



KEY TO FUNDING

COMMITTED	UNCONSTRAINED
CONSTRAINED	RECONSTRUCT
STRATEGIC	

ADVANCE COPY SUBJECT TO REVISION



SEE URBAN ENLARGMENTS

PREPARED BY TRANSPORTATION DEVELOPMENT BRANCH

LOCATIONS OF SOLUTIONS

ADVANCE COPY SUBJECT TO REVISION

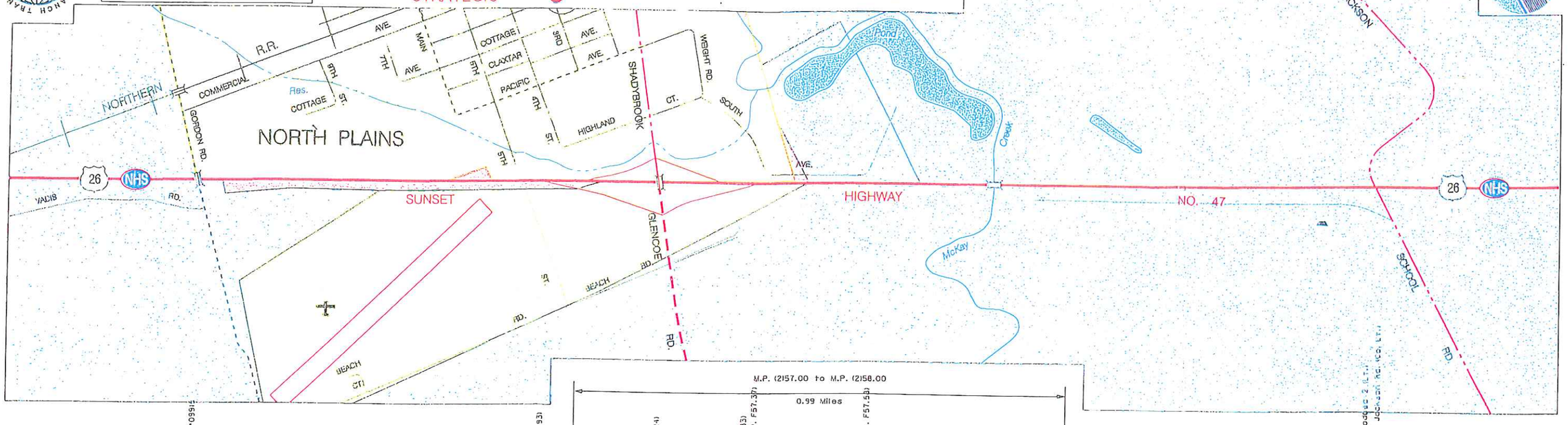
JUNE 1998

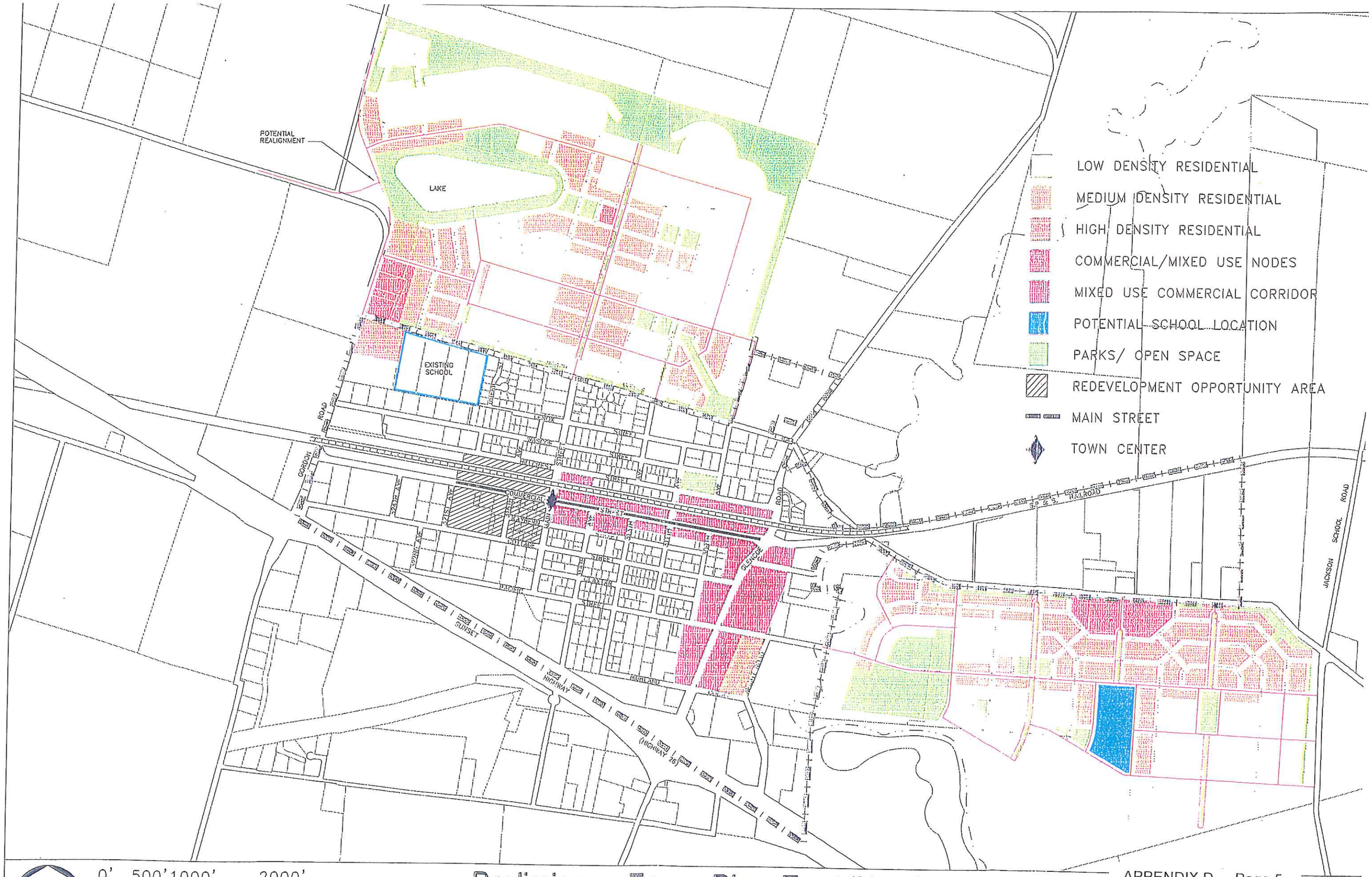
NORTH

KEY TO FUNDING

COMMITTED
CONSTRAINED
STRATEGIC
UNCONSTRAINED
RECONSTRUCT

SCALE
500 0 1000 FEET
150 0 300 METERS

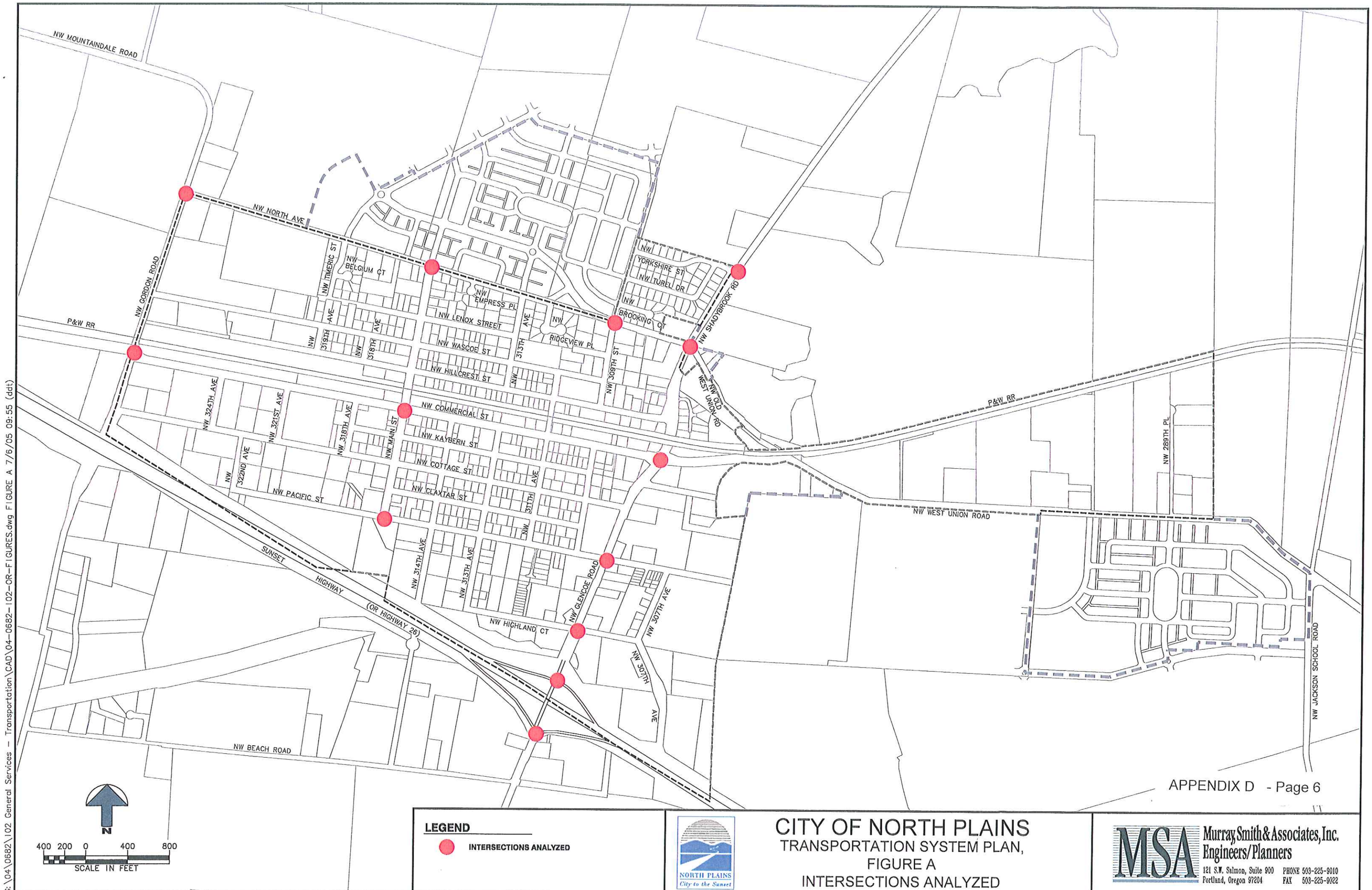




Preliminary Town Plan East/North

Land Uses
8.4 units/ac (net)

North Plains
Neighbor City Study

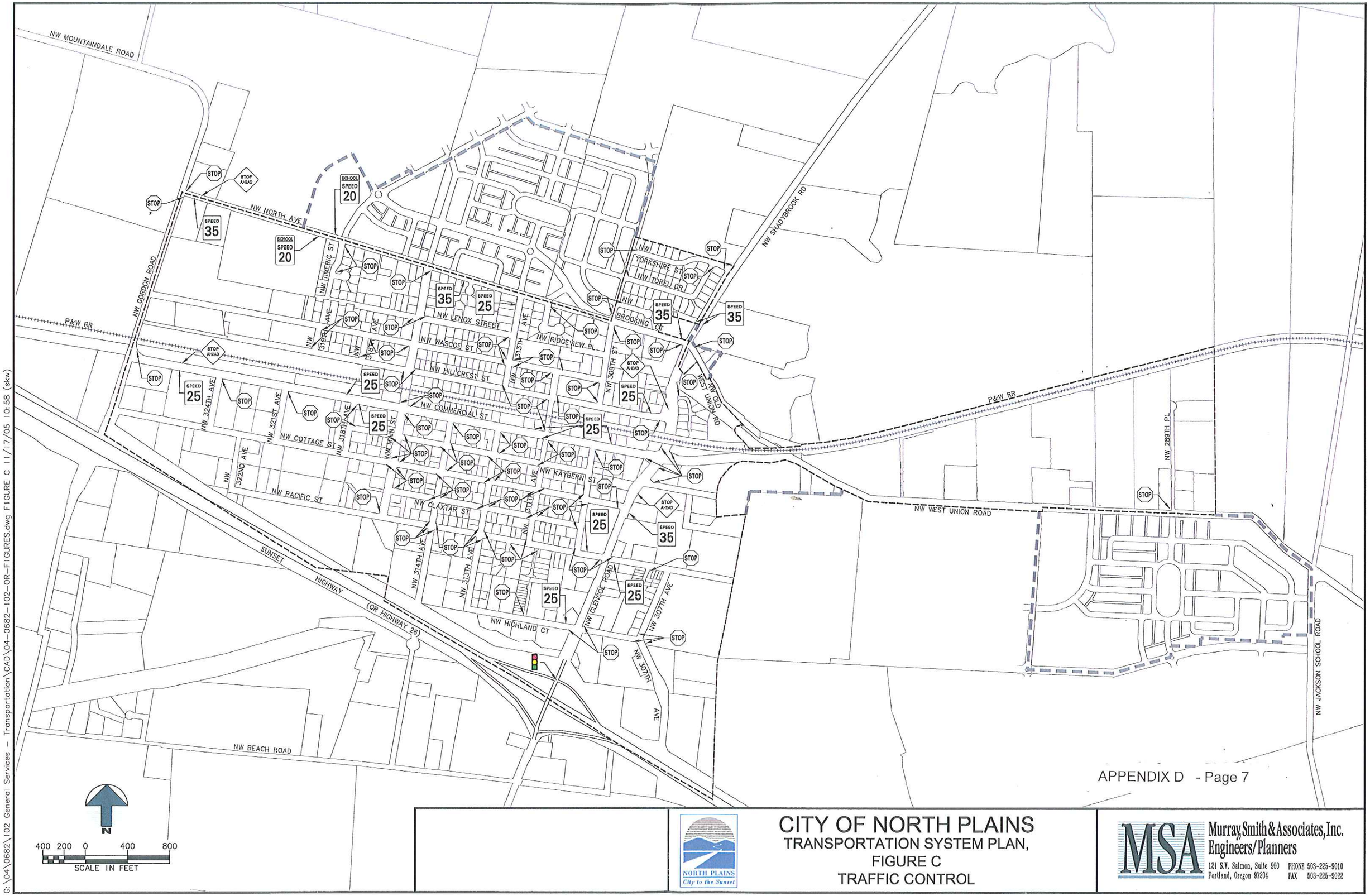


G:\04\0682\102 General Services - Transportation\CAD\04-0682-102-OR-FIGURES.dwg FIGURE A 7/6/05 09:55 (ddt)

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN,
FIGURE A
INTERSECTIONS ANALYZED

NORTH PLAINS
City to the Sunset

MSA
Murray, Smith & Associates, Inc.
Engineers/Planners
121 S.W. Salmon, Suite 900 PHONE 503-225-9010
Portland, Oregon 97204 FAX 503-225-9022



APPENDIX D - Page 7

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN,
FIGURE C
TRAFFIC CONTROL

NORTH PLAINS
City to the Sunset

MSA
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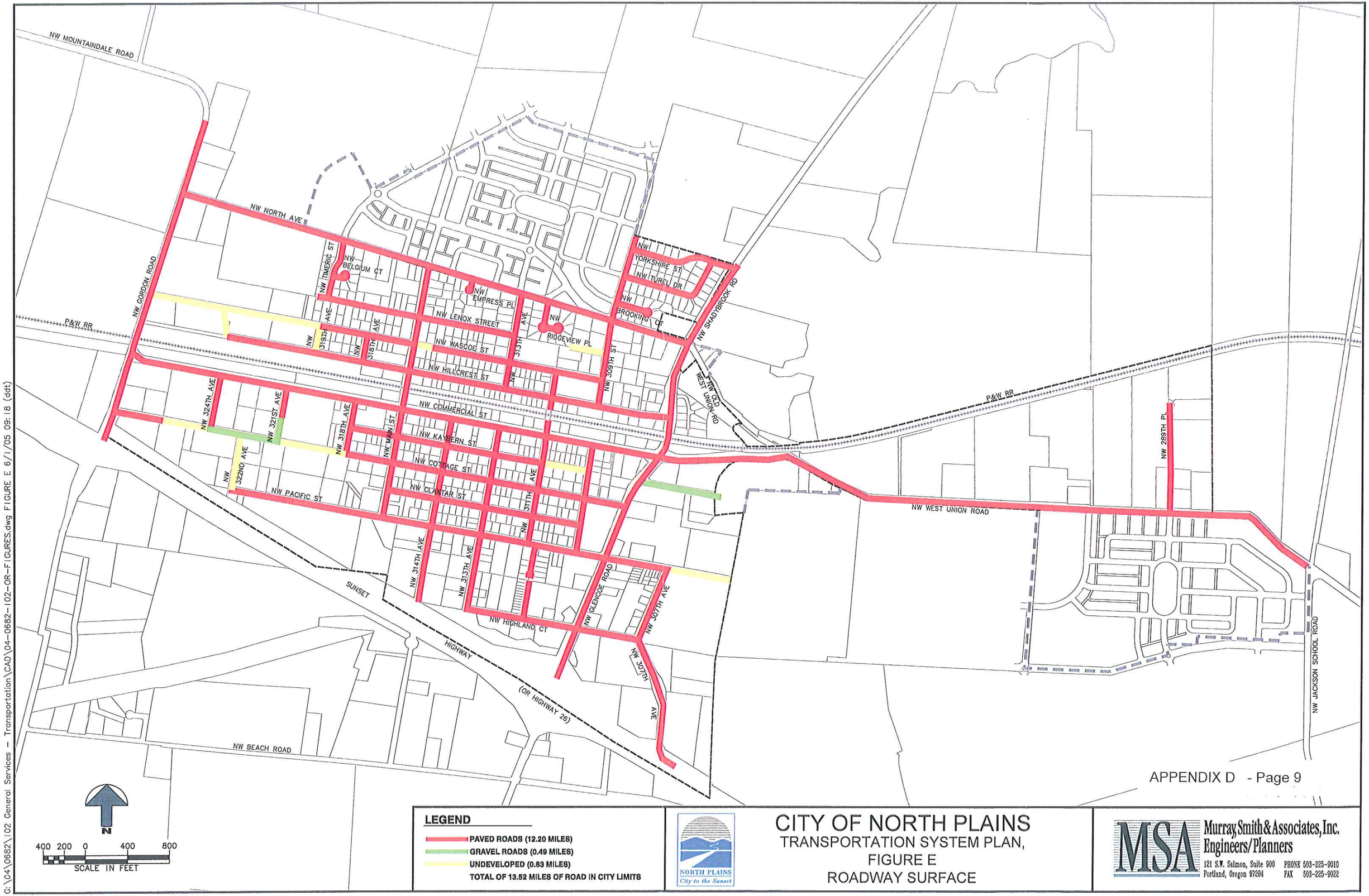
Portland, Oregon 97204
PHONE 503-225-9010
FAX 503-225-9022

NW MOUNTAINDALE ROAD
NW NORTH AVE
NW GORDON ROAD
P&W RR
NW ITIMERIC ST
NW BELGIUM CT
NW EMPRESS PL
NW LENOX STREET
NW WASCOE ST
NW HILLCREST ST
NW COMMERCIAL ST
NW KAYBERN ST
NW COTTAGE ST
NW CLAXTAR ST
NW PACIFIC ST
NW 319TH AVE
NW 318TH AVE
NW 324TH AVE
NW 321ST AVE
NW 322ND AVE
NW 318TH AVE
NW MAIN ST
NW 313TH AVE
NW RIDGEVIEW PL
NW 309TH ST
NW YORKSHIRE ST
NW TURELI DR
NW BROOKING CT
NW SHADYBROOK RD
NW OLD WEST UNION RD
P&W RR
NW WEST UNION ROAD
NW 311TH AVE
NW 314TH AVE
NW 313TH AVE
NW HIGHLAND CT
NW GLENCOE ROAD
NW 307TH AVE
NW 307TH AVE
SUNSET HIGHWAY (OR HIGHWAY 26)
NW BEACH ROAD

LEGEND

CITY OF NORTH PLAINS

6/1/05 09:18 (ddt)
eneral Services – Transportation\CAD\04-0682-102-OR-FIGURES.dwg FIGURE D



LEGEND

- PAVED ROADS (12.20 MILES)
- GRAVEL ROADS (0.49 MILES)
- UNDEVELOPED (0.63 MILES)
- TOTAL OF 13.52 MILES OF ROAD IN CITY LIMITS

NORTH PLAINS
City to the Sunset

CITY OF NORTH PLAINS
TRANSPORTATION SYSTEM PLAN,
FIGURE E
ROADWAY SURFACE

MSA Murray, Smith & Associates, Inc.
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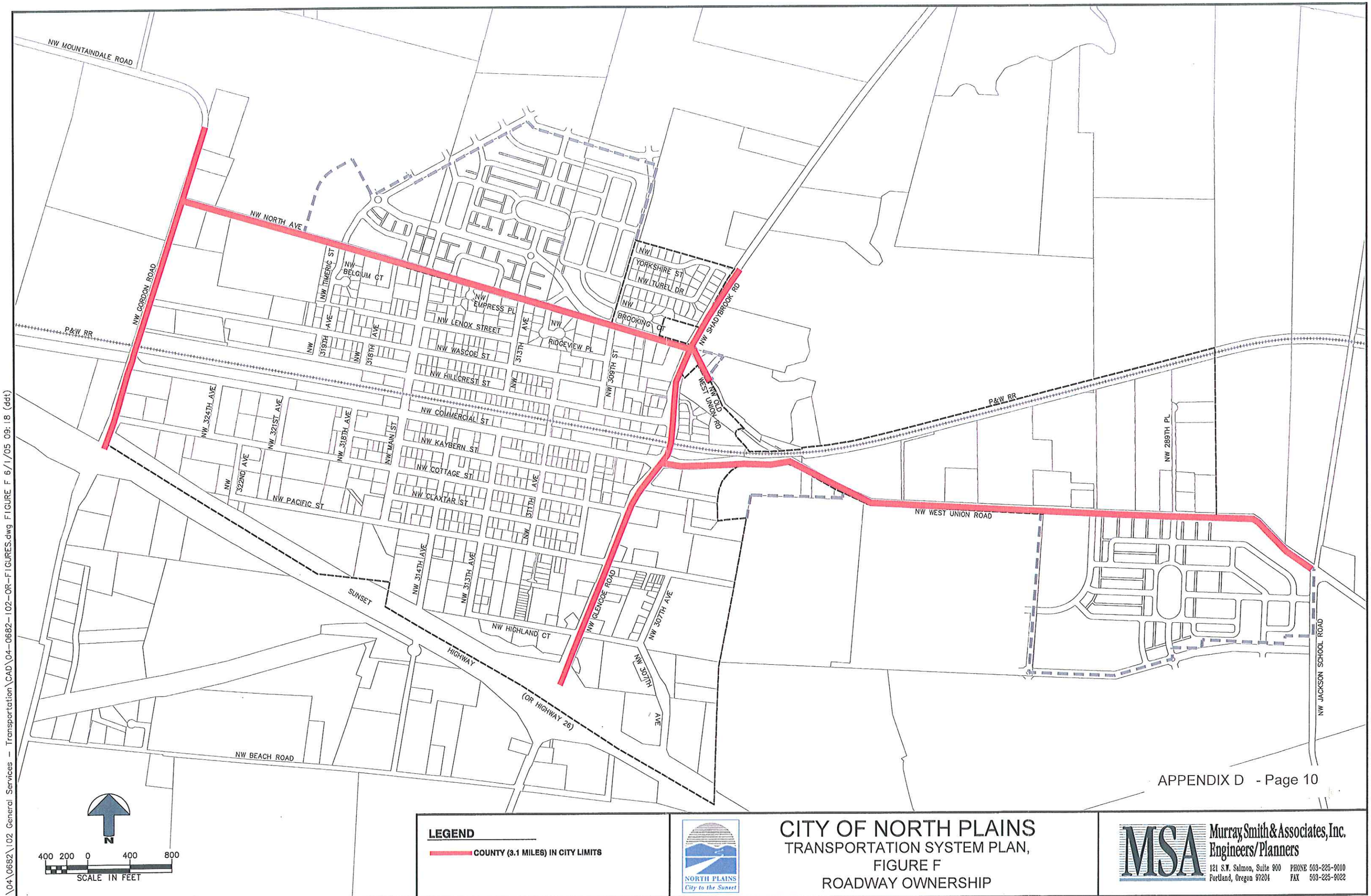
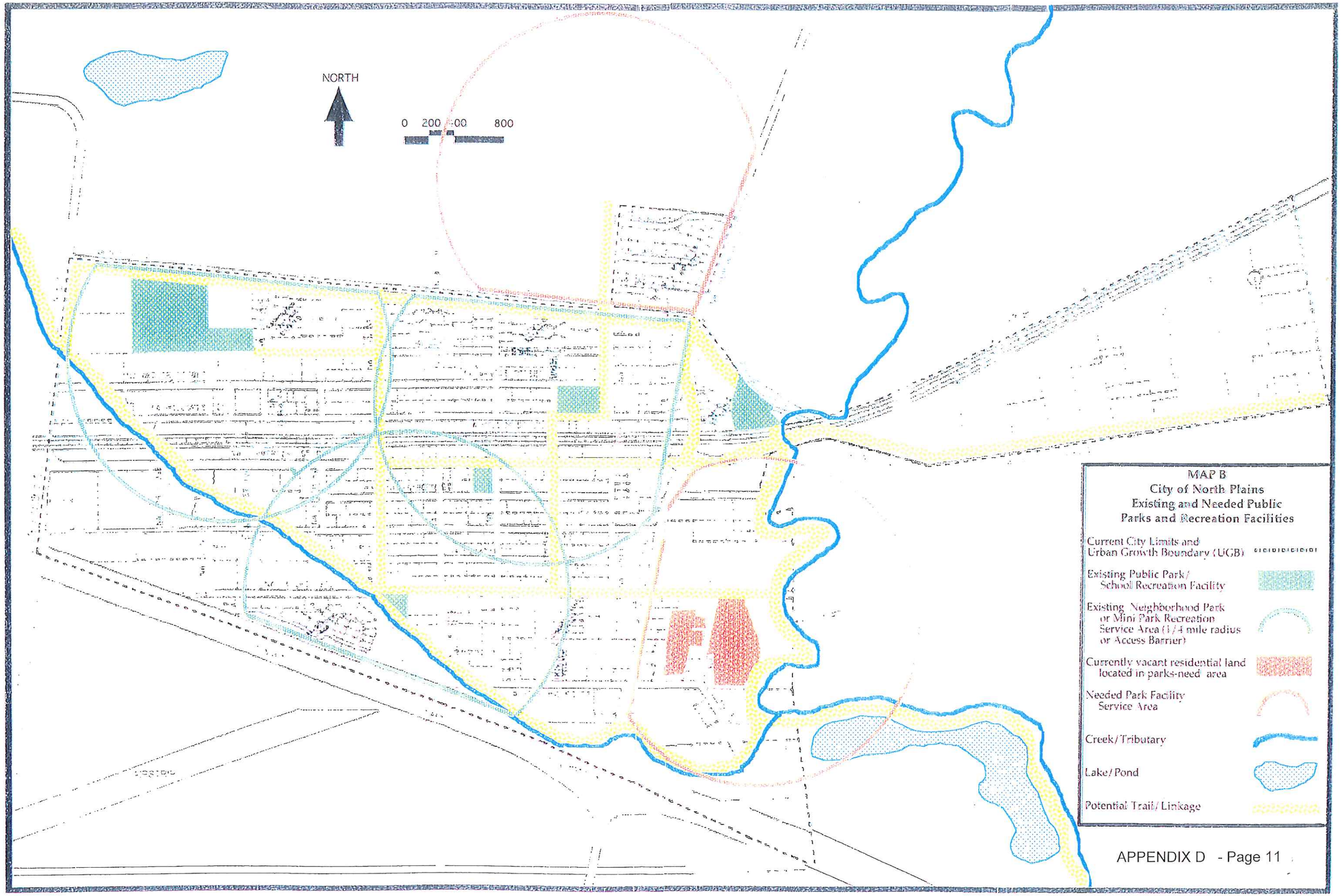
G:\04\0682\102 General Services - Transportation\CAD\04-0682-102-OR-FIGURES.dwg FIGURE E 6/1/05 09:18 (ddt)

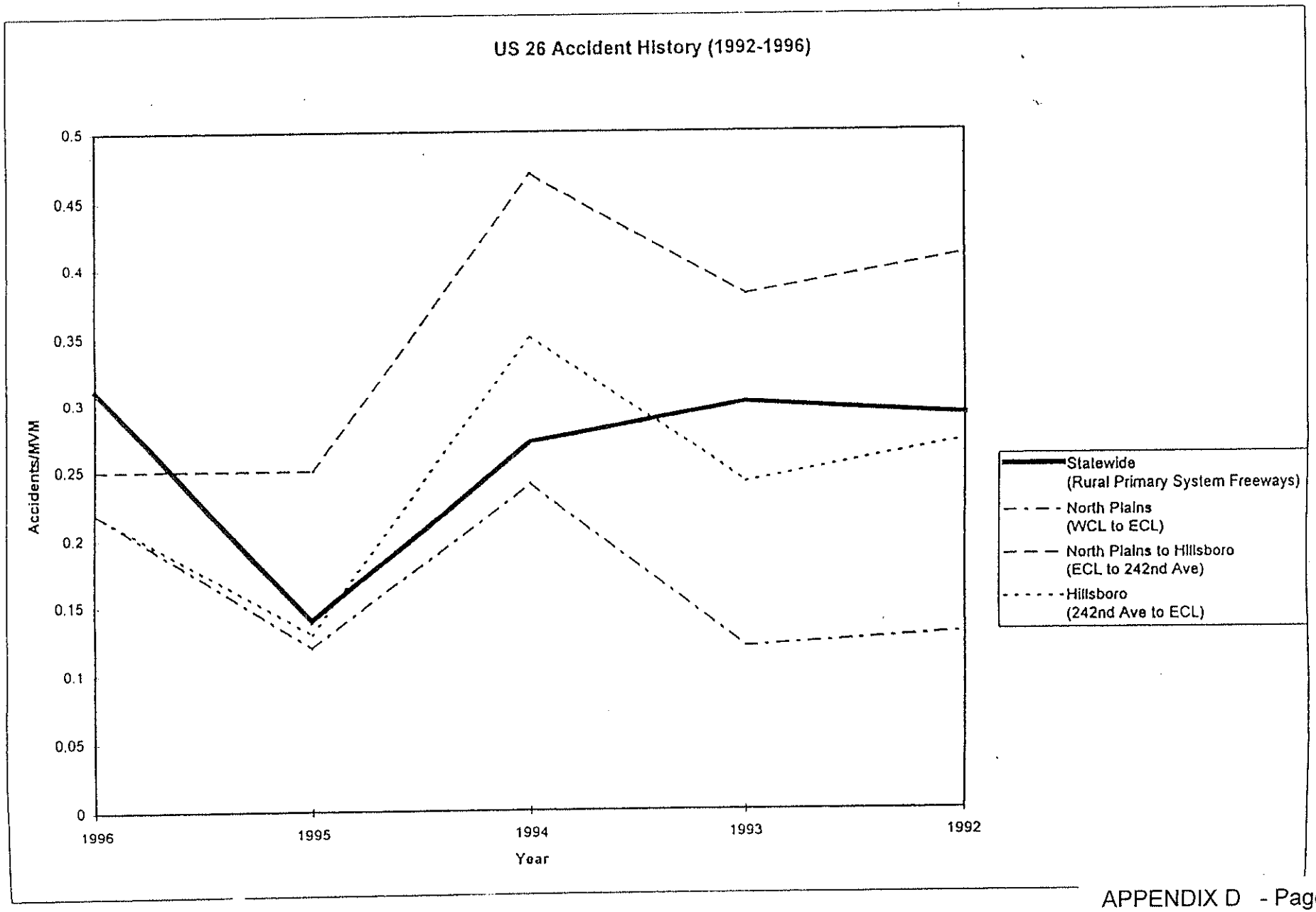


G:\04\0682\102 General Services - Transportation\CAD\04-0682-102-OR-FIGURES.dwg FIGURE F 6/1/05 09:18 (ddt)


NORTH
0 200 400 800
MAP B
City of North Plains
Existing and Needed Public
Parks and Recreation Facilities
Current City Limits and
Urban Growth Boundary (UGB)
Existing Public Park/
School Recreation Facility
Existing Neighborhood Park
or Mini Park Recreation
Service Area (1/4 mile radius
or Access Barrier)
Currently vacant residential land
located in parks-need area
Needed Park Facility
Service Area
Creek/Tributary
Lake/Pond
Potential Trail/Linkage

Astoria Corridor Plan - Solution List | **Funding Priority : unconstrained** | **Tuesday May 26, 2000**

	END MP	HWY	REG	WORK TYPE	CITY	COUNTY	ESTIMATED COST ($1000)	DESCRIPTION	JUSTIFICATION
5	54.55	47	I	Seismic Retrofit Bridge		Washington	$140	East Fork Dairy Creek Bridge; westbound; bridge no. 2366B retrofit Seismic Phase 2; Priority 9	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake
9	55.19	47	I	Seismic Retrofit Bridge	North Plains	Washington	$290	Mountaindale (Dersham Rd) interchange bridge no. 6519A Retrofit Seismic Phase 2; Priority 24	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake
3	55.68	47	I	Seismic Retrofit Bridge		Washington	$35	Vadis Overcrossing (SP&RR) eastbound;bridge no. 2367A Retrofit Seismic Phase 1; Priority 6	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake
8	55.68	47	I	Seismic Retrofit Bridge		Washington	$790	Vadis Overcrossing (SP&RR)eastbound;bridge no. 2367A Retrofit Seismic Phase 2; Priority 21	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake
2	55.72	47	I	Seismic Retrofit Bridge		Washington	$450	Vadis Overcrossing (SP&RR)westbound; bridge no. 2367 Retrofit Seismic Phase 2; Priority 4	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake
4	56.24	47	I	Seismic Retrofit Bridge	North Plains	Washington	$290	Gordon Road undercrossing bridge no. 8558 Retrofit Seismic Phase 1 Priority 25	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake. If project 7 new interchange is built before retrofit this project could be deleted.
1	57.1	47	I	Seismic Retrofit Bridge		Washington	$65	North Plains (Glencoe Rd) undercrossing bridge no 5885 Retrofit Seismic Phase 1; Priority14	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake. If project 7 new interchange is built before retrofit this project could be deleted.
1	57.1	47	I	Seismic Retrofit Bridge	North Plains	Washington	$290	North Plains (Glencoe Rd) undercrossing bridge no 5885 Retrofit Seismic Phase 2; Priority 26	Seismic retrofit of bridge to maintain and preserve safe operations in the event of an earthquake


US 26 Accident History (1992-1996)
Accidents/MVM
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1996
1995
1994
1993
1992
Year
Statewide
(Rural Primary System Freeways)
North Plains
(WCL to ECL)
North Plains to Hillsboro
(ECL to 242nd Ave)
Hillsboro
(242nd Ave to ECL)