

City of Kennewick

# Transportation Systems Plan



CITY OF **KENNEWICK**  
WASHINGTON



transpoGROUP





# City of Kennewick Transportation Systems Plan

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**Prepared For:**

*City of Kennewick*



**Prepared By:**

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**In Association With:**

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Chapter 1

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# Executive Summary





The Kennewick Transportation Systems Plan (TSP) is an integrated compilation of a number of sections, including background and policy principles, individual modal plans, a financial plan, and an implementation plan. Kennewick's vision for the City seeks to balance the community's desire for a strong local economy and encourage orderly growth, while building on the City's history and heritage. **The Background and Policy Principles** section includes the summary goals and policies from the Kennewick Comprehensive Plan, Horizons, and vision to guide the individual modal sections for a complete TSP.

As one of the states' fastest growing urban areas, the City of Kennewick is tackling a city-wide issue: managing growth while implementing the Comprehensive Plan vision. Kennewick's transportation system is experiencing significant change as the City targets expansion of the arterial and collector street system to match growth in areas like Southridge and Columbia Center, but also within major corridors that link Kennewick's neighborhoods, downtown, major employment and other activity centers.

To address the combined impacts of urban development and major transportation improvements, the City of Kennewick has undertaken a study of the city-wide transportation system. The TSP study effort began in September 2005 with the inventory of the City's current system and the expansion of the region's travel demand model for more detailed examination of future travel demand on Kennewick's major streets. The study also included a comprehensive evaluation of all aspects of the transportation system, including street, transit, pedestrian, bicycle and freight mobility (trucking and rail). The study is culminated in the Kennewick Transportation Systems Plan (TSP). The Kennewick TSP is fundamentally based on the vision and policies adopted in the Kennewick Comprehensive Plan.

The Kennewick TSP is a multi-modal plan that includes recommended projects and strategies to manage growth and meet the City's transportation needs over the next twenty

years. The Plan identifies major street projects to improve safety and build capacity to meet the growth demands, helps ensure expanded pedestrian and bicycle access and circulation, and promotes utilization and enhancement of the existing transportation system through better management techniques.

## How Was The TSP Prepared?

The Kennewick TSP was prepared with input from technical, policy, and community based sources. Inter-jurisdictional coordination and technical input in the study and review of the draft TSP was conducted through formation and regular meetings of the Transportation Advisory Group (TAG). The TAG included members from Kennewick's Council, citizen's-at-large, various City departmental staff, Ben Franklin Transit, Washington State Department of Transportation, City of Richland, Benton-Franklin Council of Governments and Benton County. The TAG met five times to review and discuss incremental findings and recommendations of the TSP components, helping refine the ultimate TSP plan recommendations.



Development of the multi-modal TSP began with an assessment of the existing transportation system followed by an evaluation of the impacts of growth and alternatives to meet the Comprehensive Plan's vision and goals for transportation: fostering a safe and accessible transportation system for all users. From this evaluation the TSP effort identified a series of street system improvement projects, bicycle and pedestrian project improvements, policies and projects that enhance public transportation, and a transportation financing plan. The TSP also identified policy recommendations and strategies that will assist the City in implementing the Kennewick TSP.

The Kennewick TSP is a multi-modal plan that includes recommended projects and strategies to manage growth and meet the City's transportation needs over the next twenty years.

## Recommended Projects

To safely and efficiently accommodate the future movement of all users and modes in the Kennewick planning area, a series of improvements to the existing transportation system are identified.

### Major Street Improvement Projects

Street system improvements are identified as part of the Kennewick TSP effort, as summarized in **Exhibit 1-1**. The analysis of growth and development over the next twenty years indicates that the transportation system will require several major street corridor and intersection enhancements. Some projects add travel lane capacity for motorized traffic and include important bicycle and pedestrian system enhancement features. Other street projects include new and important urban design features to better accommodate the volume and mix of multi-modal travelers in Kennewick. And yet other projects involve wholly new arterial and collector street improvements, primarily to serve new growth. Following are some of the key TSP recommendations as example street improvement priorities:

- Completion of Steptoe Street to provide a more direct north-south connection between SR 240 and development in the Southridge area, particularly with the completion of the new SR 240 interchange and roundabout at the northern terminus of Steptoe Street
- New Southridge area arterial and collector streets to better accommodate future traffic generated by growth in the southwest corner of Kennewick. These streets are planned for adequate travel lane capacity, bicycle lanes and sidewalks for non-motorized circulation and access within the area and connections to greater Kennewick.
- Street widening and upgrade projects were identified to maintain current infrastructure, relieve congestion and provide important bicycle and pedestrian facilities along Edison Street, Olympia Street, and Columbia Center Boulevard.

The TSP also identifies key intersection improvements to reduce traffic congestion and enhance vehicular and pedestrian safety. Approximately 40 percent of all recommended intersection improvements focus on the US 395 and Edison Street corridors, key north-south routes serving greater Kennewick.



Completion of Steptoe Street is a high priority project for the City.

To make more efficient use of existing infrastructure the TSP identifies several transportation system management (TSM) programs and projects, including enhancements to Kennewick's city-wide traffic signal system to reduce traffic delay, and improve operations and enhance traveler safety.

In all, the TSP identifies over sixty arterial and collector street, intersection and system-wide management improvement projects.

### Pedestrian and Bicycle Projects

Sidewalk and bicycle system improvements are identified in the TSP. The projects are defined to encourage walking and biking, better link the City's neighborhoods and centers, and better integrate all travel modes (including access to transit). The Kennewick TSP also includes project recommendations to fully complete the trail systems.

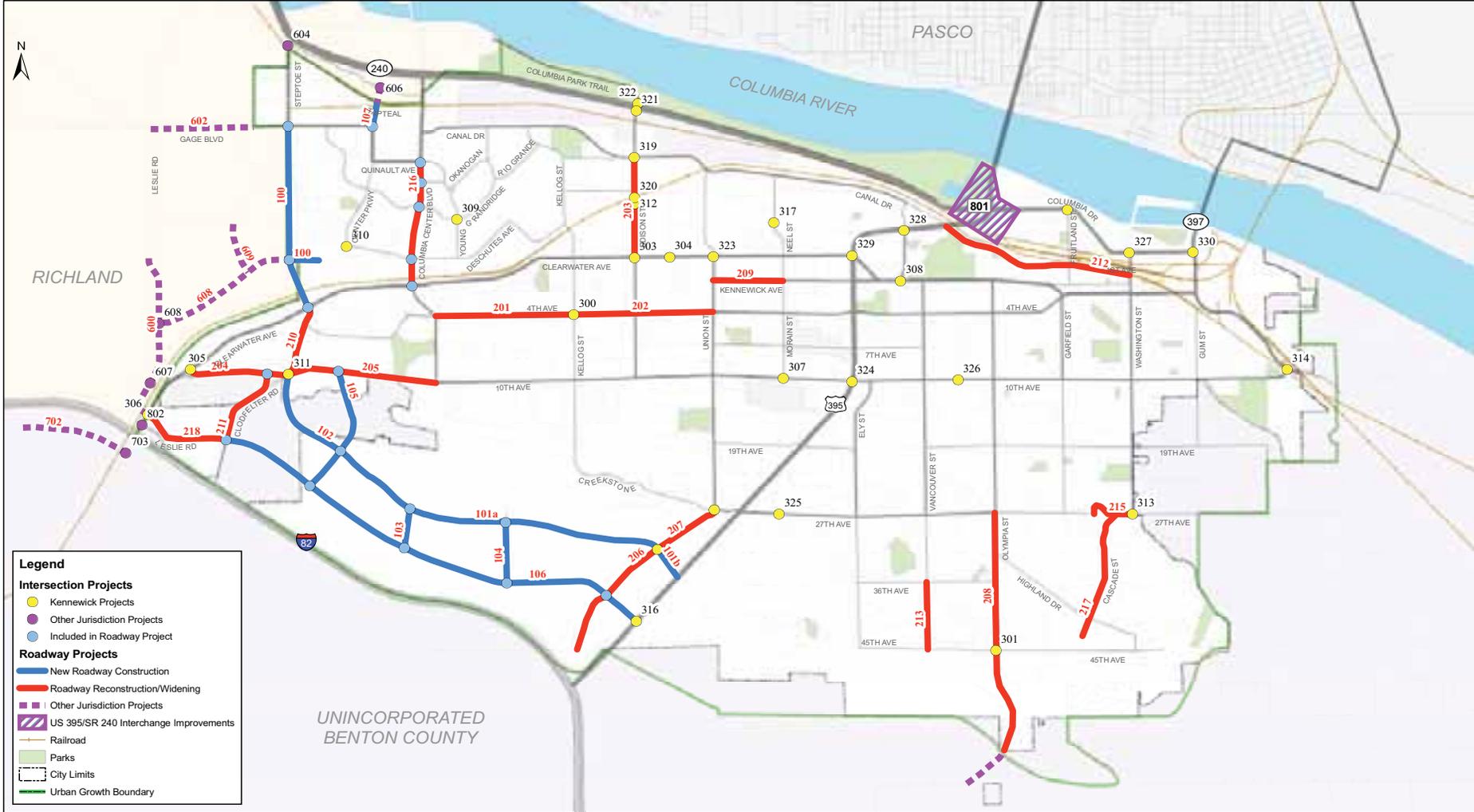
All of the new street projects in the Street System plan include new sidewalks, curb ramps and in many cases bicycle lanes. Street widening projects include the replacement of sidewalks and substandard curb ramps. There remains, however, gaps in the current sidewalk network along several arterial and collector streets that are not subject to street widening or reconstruction. Some of the significant stand-alone pedestrian project recommendations, as summarized in **Exhibit 1-2**, include:

- Full sidewalk completion and rail crossing safety upgrades on 10th Avenue, First Avenue and SR-397.
- Construction of missing sidewalks and curb ramps on Carmichael Drive, Quinault Avenue, Clover Island Drive, Yelm Street, Canal Drive and Gum Street.

There are gaps in Kennewick's bicycle system. As shown in **Exhibit 1-3**, bicycle system improvements are identified along many of the City's arterial streets, with the intent to improve cycling safety and fill system gaps to enhance the efficiency of the City's bicycle system. Some routes can easily be re-stripped with bicycle lanes, including portions of Fourth and First Streets, Tenth Avenue, Edison Street, Canal Drive, and Leslie Road.

Some of Kennewick's older streets were constructed within limited rights-of-way, without on-street bicycle lanes, making

Exhibit 1-1 Street Projects



### Exhibit 1-2 Pedestrian Projects

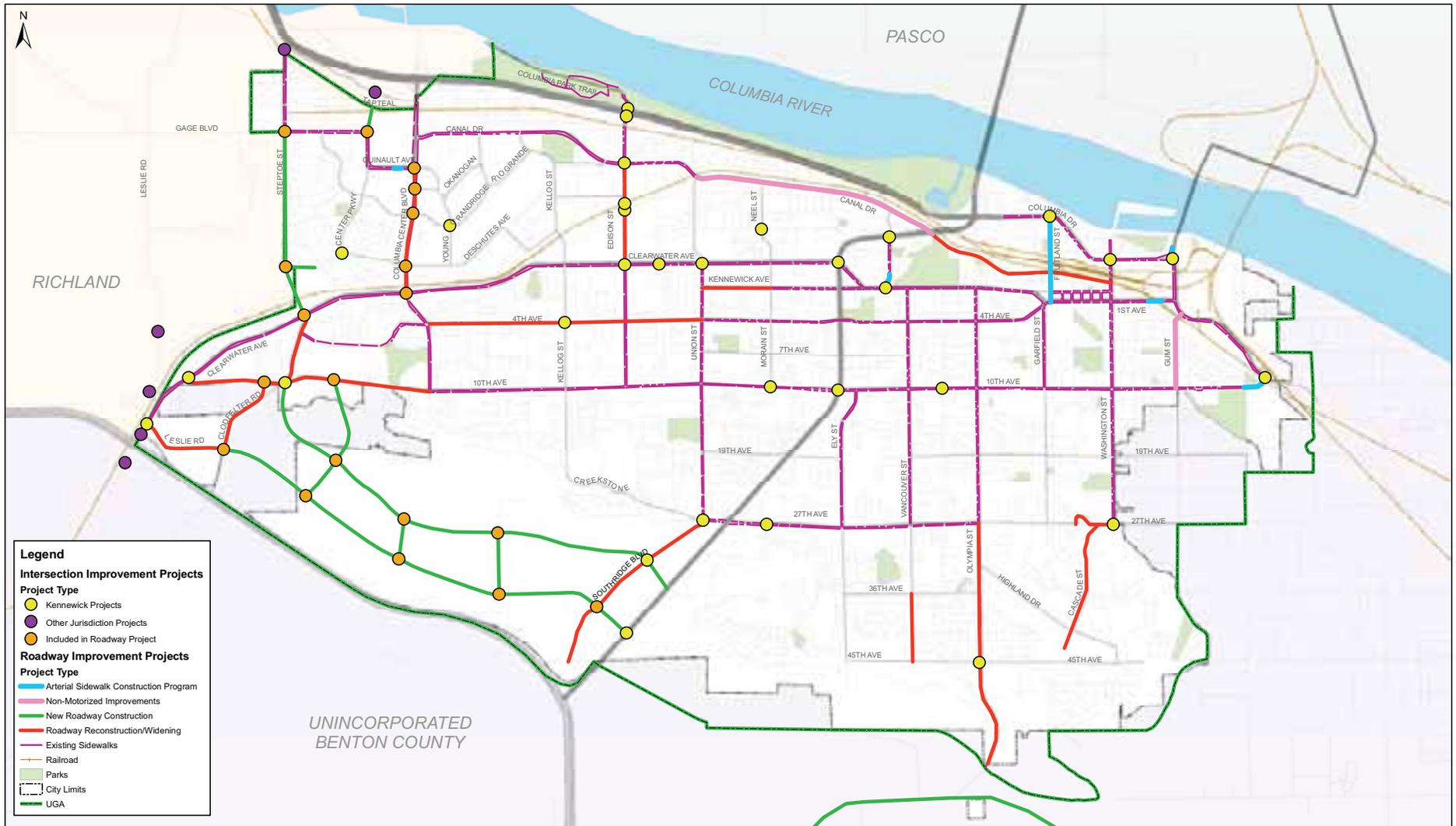
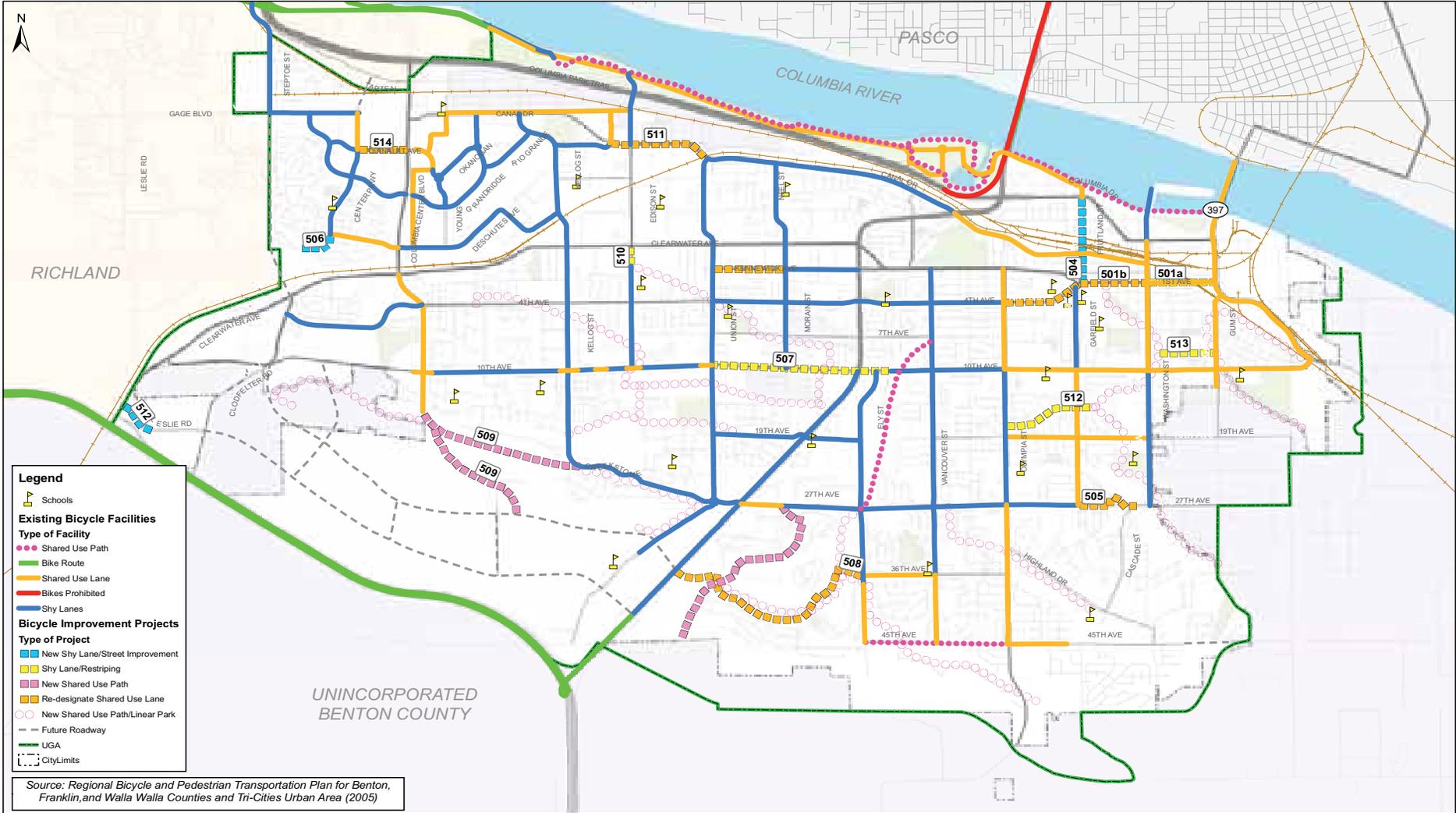


Exhibit 1-3 Bike Projects



it difficult to add bicycle lanes without removing needed travel lanes or other street features. In these cases the TSP recommends bike route designations as “shared-lane” facilities. As an example, the TSP recommends signing and striping a portion of Canyon Lakes Drive as a shared-lane route, completing a critical bicycle connection in the south Kennewick area.

Also, the Street System plan recommends TSM measures to re-striping a number of City arterial and collector streets with



relatively inexpensive, on-street bicycle lanes through “road diet” enhancements. Road diets typically involve re-striping four-lane (two travel lanes in each direction) major streets, with relatively lower traffic volumes, to one travel lane and a bicycle lane in each direction, with a center left-turn lane or median island. Recommended road diets projects include portions of Fruitland Street, Kennewick Avenue, Fourth Avenue, Tenth Avenue, Canal Drive and Washington Street. These projects help fill critical gaps in the existing network, resulting in a more comprehensive and well-connected bicycle system.

“Complete Streets” – a broad but important policy statement whereby the safety and convenience of all users of Kennewick’s transportation system are accommodated and balanced in all types of transportation and development projects (Chapter 3).

## Recommended Policies

The Kennewick TSP contains a **Background and Policy Principles** section, including goal statements and objectives, and a comprehensive set of policies to address broader issues of multi-modal connectivity, safety, livability and intergovernmental coordination; but also to guide the individual modal sections for a complete TSP. Each modal section of the Kennewick TSP contains specific goals, plus a number of objectives by which the plan findings and recommendations are generally measured. A representative sample of key policies exemplifying the breadth and scope of the TSP include the following:

- “Complete Streets” – a broad but important policy statement

whereby the safety and convenience of all users of Kennewick’s transportation system are accommodated and balanced in all types of transportation and development projects (**Chapter 3**).

- Level of service standards used to evaluate transportation impacts of long-term growth and concurrency (**Chapter 4**).
- Focused attention to pedestrian system development that complements access to transit and compliance with the American’s With Disabilities Act (ADA) standards (**Chapter 5**). Connecting the trail network for bicyclists and pedestrians, by development of connectors linking the Sacajawea, Heritage, Audubon Nature and Zintel Canyon Trails (**Chapter 6**).
- Consideration of transit-supportive street system and urban design measures to promote connectivity and access to transit (**Chapter 7**).
- Continued support of the regional ride-share program for carpooling and vanpooling, to help reduce drive-alone commuting (**Chapter 7**).
- Identifying truck routes which link inter-modal facilities, ports and industrial zones (**Chapter 8**).
- Considering the likely impacts of future growth and determine if and at what level transportation impact fees should be collected by the City to mitigate impacts placed on area-wide transportation facilities by expected future development (**Chapter 9**).
- The Kennewick TSP is to be the legal basis and policy foundation for actions by decision-makers, advisory bodies and staff on transportation issues (**Chapter 10**).

## Recommended Implementation Strategies

Within each modal section the Kennewick TSP recommends a number of implementation strategies which focus on enhancements to Kennewick’s non-motorized transportation system, including:

- Regular updates of the Six-Year Transportation Improvement Plan with non-motorized transportation system projects identified in the TSP (including street, sidewalk, shared-use path, bicycle lane and TSM improvements).
- Ensuring non-motorized facilities are planned and provided as part of private development of properties and subdivisions.
- Coordination with Washington State Department of Transportation (WSDOT) to ensure non-motorized facilities are included in WSDOT improvements to SR 240 and US 395.

## Exhibit 1-4 Kennewick TSP Financial Plan Summary (2007 Dollars)

TSP Capital Improvement Project Costs	Million 2007 \$
New Roadways	\$ 25.5
Street Widening / Reconstruction	\$ 41.2
Intersections	\$ 13.6
Major Sidewalks	\$ 3.5
Bicycle Route / Shared-Use Paths	\$ 7.0
Southridge Internal Needs	\$ 24.3
<b>Total</b>	<b>\$ 115.1</b>
20-Year Revenue Estimate	Million 2007 \$
Baseline Revenue	\$ 67.2
Impact Fees	\$ 23.6
Southridge Impact Fee Surcharge or Latecomer Fee Impact Fee	\$ 24.3
<b>Total</b>	<b>\$ 115.1</b>

Only accounts for costs of projects shown as "funded" in Exhibit 4-10.

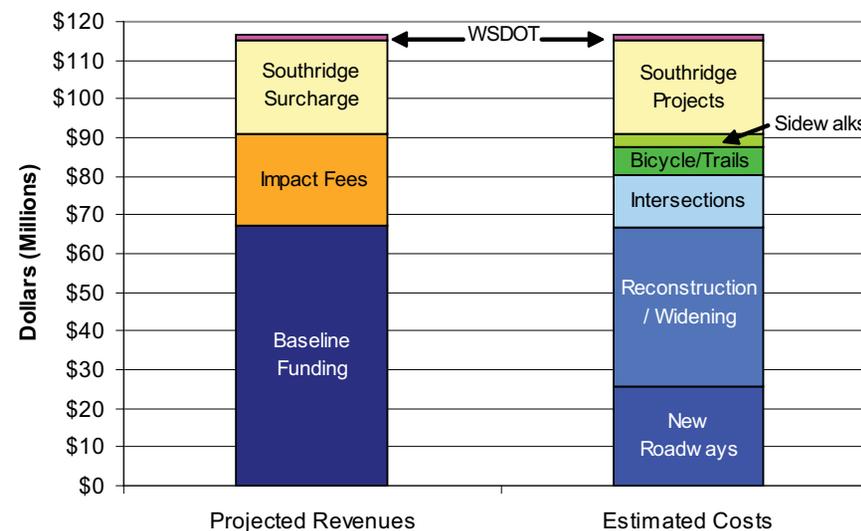
## Transportation Financial Plan

The transportation Financial Plan for the Kennewick TSP includes four major sections:

- a discussion of existing and potential financing sources to fund major transportation improvements;
- an analysis of historic street improvement funding sources;
- a list and general estimate of the timing for planned transportation facilities and major improvements; and,
- a summarization of planning-level cost estimates for the transportation facilities and major investments identified in the TSP (intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan(s) and allow Kennewick to assess the adequacy of existing and possible alternative funding mechanisms).

The financial analysis performed for the Kennewick TSP is aimed at providing the City with information to help answer two main questions:

1. What transportation improvement projects can the City reasonably afford to build in the next 20 years?
2. What would the City have to do to augment available revenue for transportation infrastructure in order to increase the number of projects it is able to build?



As noted in **Exhibit 1-4**, the TSP identifies slightly more than \$115 million in capital improvement projects over the next twenty years. These projects include new major streets, major street widening or upgrades, intersection, bicycle and pedestrian system improvements. Key findings of the TSP financial plan evaluation have major significance:

- Per capita Motor Vehicle Fuel Tax revenue is declining in real terms;
- State and Federal grants for capital improvements are becoming much more competitive; and,
- Local fees and sales tax, combined with estimated Fuel Tax revenue and grants are estimated to total only about \$67.2 million by 2025 (measured in 2007 dollars), approximately 45% of the TSP capital improvement needs.

**Exhibit 1-4** summarizes the Kennewick TSP capital improvement project costs (in 2007 dollars), and baseline revenue estimate, supplemented by a set of possible new funding options for the time period 2007-2025.

The TSP also notes that the City’s 20-year street maintenance needs (\$104 million) are estimated to exceed the current level of funding and programming (\$52 million).

It is critical to note that the TSP is not intended as the singular plan of finance and does not require the City to commit to a specific funding plan. Instead, it is meant to provide information so that the City’s policy makers are able to make informed decisions regarding the balance between building necessary transportation infrastructure and the opportunities and efforts required in raising the revenue needed to pay for it.

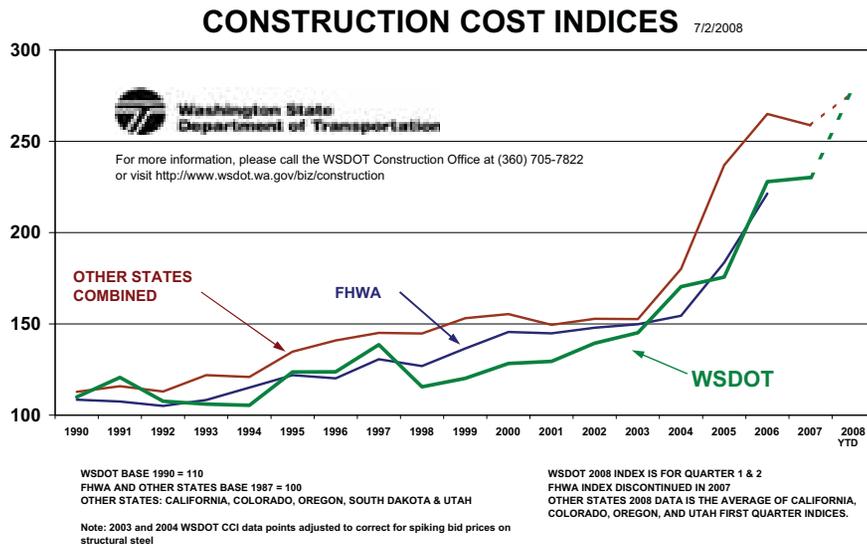
By policy direction the TSP recommends that Kennewick consider the following funding options: (a) a city-wide transportation impact fee to help fund city-wide growth-related capital improvements, (b) a greater contribution from WSDOT to improve mobility and safety along US 395, and (c) some form of latecomer fee for the Southridge area to fund additional capital improvements specific to the Southridge subarea. The need is great. Kennewick’s Plan is well-defined.

The ability to fund both transportation system maintenance and capital improvements will be a major challenge in the years to come.

## Conclusion

The Kennewick urban area will experience significant growth over the next twenty years. The increasingly complex interaction of transportation and land use, and the need to find new and creative ways to fund public projects, creates a challenge for policy-makers as they determine public infrastructure investments. The Kennewick TSP is intended to guide transportation investment decisions in a comprehensive and coordinated manner, and provide the standards and policies by which Kennewick’s future transportation system will be improved to meet the community’s vision.

“Project transportation costs are expected to increase at a faster rate than revenues.”



Chapter 2

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# Introduction





## Vision for Kennewick's Transportation System

Kennewick is uniquely situated within the Tri-City metropolitan area which has experienced Washington's highest population growth since 2000<sup>1</sup>. The Tri-City area has also been noted as home to the country's top metro work-force for scientists and engineers<sup>2</sup>. In full recognition of emerging growth and economic development forces in Kennewick, the City has undertaken significant effort to revise and update its Comprehensive Plan, Horizons.

Since 2005 the City has completed several Plan components as either updates or amendments, each predicated on the City's Vision Statement for the community:

*Building on Kennewick's history and heritage, our vision for Kennewick includes a strong and diverse local economy that takes advantage of our unique location and resources; a process of orderly growth which supports and strengthens existing neighborhoods; and a governance structure based upon open communications and participation<sup>3</sup>.*

The City has updated its Comprehensive Plan with an Urban Design Element with emphasis to enhance the public rights-of-way and improve vehicular and pedestrian circulation, enhance the overall pedestrian environment through streetscape, lighting and facility improvements, and encourage better connectivity to the waterfront recreation areas. The City has also developed its Concurrency development code in efforts to complete its comprehensive growth management plan. Further refinements to its development code and revisions to the City's street design standards have provided greater emphasis on pedestrian and bicycle system features, and improved design linkages between land use and public transportation. For consistency with other Plan elements and policy, the Transportation Element of the Comprehensive Plan is in need of updating.

Kennewick's transportation system is experiencing significant change. Emerging and proposed residential, commercial and work-place developments west of US 395 are expected to place significant pressure on the City's arterial street system. To address the combined impacts of new development, redevelopment and major transportation improvements, a

comprehensive evaluation of the detailed operations for all aspects of the transportation system is needed, including motor vehicle, transit, pedestrian, bicycle and freight mobility (trucking and rail).

This City's Vision is embodied in the City's first comprehensive Transportation Systems Plan, a plan that seeks to balance the community's desire to encourage orderly growth and for a strong local economy, while building on the City's history and heritage. The City of Kennewick undertook this transportation systems planning effort to identify and adopt a comprehensive set of policies and improvement projects to effectively manage growth throughout greater Kennewick. This city-wide planning effort focused on all modes of transportation, and included a significant agency coordination program.

### Background

The City of Kennewick is rich in history, including original use by early Native American tribes as a gathering place for winter quartering and as a convenient area for the trading of goods and food. Kennewick was incorporated in 1904, and the Northern Pacific Railroad (later to become the Burlington Northern Santa Fe railroad) expanded to include the Kennewick area. With the railroad Kennewick became a significant shipping depot for agricultural products destined for national markets. At the onset of World War II the Hanford Project brought significant change to Kennewick, with increased residential development to house those Hanford government employees not already fitted in the newly formed City of Richland. Kennewick has since grown to become the largest community of the Tri-Cities.

Between the 1960's and 1980's, and coupled with the development of the interstate freeway system and new Columbia River bridges, the greater Tri-City area has experienced significant suburbanization. In the last ten years Kennewick has experienced refocused development to the south and west, and revitalized development interest in the downtown core and industrial areas.

The Kennewick transportation system has evolved in the past century to meet the needs of the area. Today it is a mix of traditional grid network in and surrounding the core downtown

### ***The TSP Supports the City's Vision Statement***

*Building on Kennewick's history and heritage, our vision for Kennewick includes a strong and diverse local economy that takes advantage of our unique location and resources; a process of orderly growth which supports and strengthens existing neighborhoods; and a governance structure based upon open communications and participation.*

area, connected by a series of north-south and east-west arterial and collector street routes to surrounding residential neighborhoods, commercial and employment centers. Many of the Kennewick's streets are lined with sidewalks serving nearby business, commercial and residential uses. Some neighborhoods include streets with well-connected sidewalks; others have limited and often disconnected sidewalks.

There are a number of major streets which include on-street bicycle lanes for adults and commuter cyclists. These routes are partially connected, as there are gaps in the system for cyclists to access the various sections of Kennewick. For recreational cyclists, the Columbia riverfront shared-use path, Sacajawea Heritage Trail, offers excellent service for recreational cyclists and pedestrians alike. The challenge exists for Kennewick to locate and build a system of connected shared-use paths that provide utilitarian service and access to the Sacajawea Heritage Trail. The completion of new shared-use paths along the existing canal system will provide new connections for expanded circulation and access for a variety of pedestrian and bicycle travelers throughout the Kennewick urban area.

What were once largely transportation assets, the Burlington Northern Santa Fe (BNSF) railroad has become, in part, barriers to local traffic circulation and access between Kennewick's downtown, surrounding neighborhoods and the riverfront and port areas. The recent completion of the Columbia Center Boulevard grade separation project greatly enhances access between Kennewick activity centers and helps eliminate some of the barriers that rail operations present. The TSP (Chapter 8) identifies conceptual, grade-separation connectors of the BNSF at Edison Street and in the downtown Kennewick area that will better link greater Kennewick with a variety of waterfront development opportunities.

Through Ben Franklin Transit's Three Rivers, Huntington Street and Dayton Street transit centers, BFT provides linkages between Kennewick's many neighborhoods, civic and commercial centers and neighboring cities via a number of local bus lines. Throughout its history BFT has expanded its geographic coverage and frequency to meet the area's growing needs.

## Need and Purpose for the Plan

Transportation systems plans are typically composed of policy and facility plans to guide long-term development of a multi-modal transportation system. The need for the Kennewick Transportation Systems Plan (TSP) is twofold. First, to effectively manage growth, the City needs to complete a comprehensive examination of traffic operations and transportation system impact analysis of pending development in the Southridge and other areas. Second, the City also needs to complete a long-term plan with projects and policies that integrate all modes of travel to fulfill the City's goals and vision of vibrant neighborhoods, orderly growth and a strong economy.

Until this plan was prepared, a comprehensive and detailed examination of transportation impacts of local development has not been fully evaluated. Generally speaking, Kennewick's current street system is designed to meet current, average traffic levels. Potential capacity and operations improvements are not yet fully identified to address the general impacts of growth, both within Kennewick and throughout the Tri-City urban area. This plan looked at the cumulative impacts of these developments and established strategies and implementation plans to most cost-effectively address the various transportation needs of the area.

The evaluation of current and future traffic conditions in the Kennewick TSP was conducted while considering a cohesive multi-modal system, helping the City validate the ability of the transportation system to support the City's vision and identify steps or measures needed to implement the vision. Once completed, the City can then manage growth by accurately and equitably conditioning individual developments for specific transportation system improvements. The plan for these improvements will be implemented over the next 15-20 years, and will be used to supplement and periodically update the City's Six-Year Transportation Improvement Program (TIP).

The Kennewick TSP identifies projects, policies and strategies necessary to support the land use plan, and recommends amendments to the policies of the Kennewick Comprehensive Plan. It is also a principal component of the City's growth management policy. Recommended strategies include the

possible timing and sequencing of needed street, traffic control, pedestrian, bicycle and transit-related improvements.

### Plan Coordination

The Kennewick TSP included the formation of a Transportation Advisory Group (TAG) with members from Kennewick's Council, citizen's-at-large, various departmental staff, Ben Franklin Transit, Washington State Department of Transportation, City of Richland, Benton-Franklin Council of Governments and Benton County. The TAC met five times and reviewed, discussed and provided direction on several of the TSP components. Their input was used to refine the TSP findings and documentation.

## Planning Process

### Plan Development

The development of the Kennewick TSP was guided by systematic input by the City of Kennewick staff and the TAG. A workshop with the City Council and Planning Commission was conducted to help review and provide important policy-level comment on draft elements of the plan.

### Planning Horizons

The Kennewick TSP is a long-range plan that contains policy language and detailed descriptions of transportation system improvements over the 2005-2025 planning horizon. The plan also contains detailed analyses of short-term, future traffic operations in the Kennewick area, from which the City of Kennewick can make appropriate decisions to guide and manage growth in the downtown area.

### Study Area

The Kennewick TSP study area is generally bounded by the Columbia River on the north and east, the highland bluffs south of 47th Street to the south, and the City of Richland on the west.

## Study Area Analysis

Before transportation system improvements can be planned for Kennewick, its current and future travel demands must be assessed. Those assessments have been made based on the City's Comprehensive Plan. **Chapter 4 – Street System** of this document includes a full description of the current transportation and land use conditions, future development plans and travel conditions, and the various transportation system alternatives tested to meet the needs for Kennewick's street system. This effort was accomplished through use of BFCOG's regional travel demand model, as refined for more detailed application within the Kennewick urban area. The model helped to identify system-wide issues through evaluation of such things as travel time along key corridors, access issues for new developments, delays at key intersection approaches and overall volume-to-capacity on major streets.

A walking inventory of pedestrian features along the City's arterial and collector streets was also completed as part of the TSP. The inventory data was collected and integrated into the City's geographic information system (GIS) for further assessment of non-motorized system needs and improvement projects (see Chapter 5).

## Goals, Objectives and Implementation Strategies

Contained within the **Kennewick TSP (Chapter 3)** is a set of comprehensive goals, objectives and implementation strategies that guide how transportation system improvements are to be made in the Kennewick area over the next 20 years. These policies provide a comprehensive framework for adoption of more detailed City regulations and requirements that relate to development, facility design standards as follow-up to the TSP. These policies constitute the foundation and parameters of how transportation planning decisions will be made by the City of Kennewick.

- *Street System*
- *Pedestrian System*
- *Bicycle System*
- *Transit and TDM System*
- *Freight Mobility, Air and Water Transportation*
- *Financial Plan*



The TSP is an assimilation of individual plan sections focusing on each mode and component of the transportation system.

## Individual TSP Sections

The **Kennewick TSP** is an assimilation of coordinated plan sections that deal specifically with each mode of travel, or aspect, of the entire transportation system. Each has applicable goals, objectives, recommended projects and implementation strategies. The Plan includes the following sections:

### Street System

Identifies the needs of the entire street system, assigns each street a functional classification, and recommends planned street improvement projects and transportation system management projects and program of maximizing the capacity and safety of the existing street system through traffic engineering and applications of technology.

### Pedestrian System

Identifies needed enhancements to the pedestrian system, including sidewalks, shared-use paths and amenities. It designates primary and secondary pedestrian routes, contains policies that encourage walking, and lists planned pedestrian infrastructure improvements.

### Bicycle System

The Bicycle System section identifies bicycle system needs and contains policies that encourage bicycle use and safety. It designates streets as bicycle routes, and lists planned bicycle system improvements.

### Transit and Transportation Demand Management System

The Transit and TDM section describes the City's role in supporting the transit system through infrastructure improvements, particularly pedestrian system enhancements and traffic control measures, and City land use policies and codes that help guide transit-supported land use developments. This section also contains policies that encourage and facilitate the use of carpools, vanpools, flexible work hours, telecommuting, and other alternative modes that reduce trips and decrease reliance on the single-occupant vehicle travel, especially for the commute trips.

## Freight Mobility, Air and Water Transportation

Identifies the infrastructure needs for moving goods and services into, out of and through Kennewick. This chapter contains policies and planned improvements for designated truck routes serving the Kennewick urban area, and important air and water transportation facilities.

## Financial Plan

Identifies the financial resources needed to achieve the level of mobility outlined in the Kennewick TSP. New options to establish transportation impact fees are considered and evaluated as part of the examination of future funding needs, projected revenues from traditional sources, and unmet future needs. This chapter also contains policies that guide the City's funding strategy for providing transportation services.

## Land Use and Transportation Planning

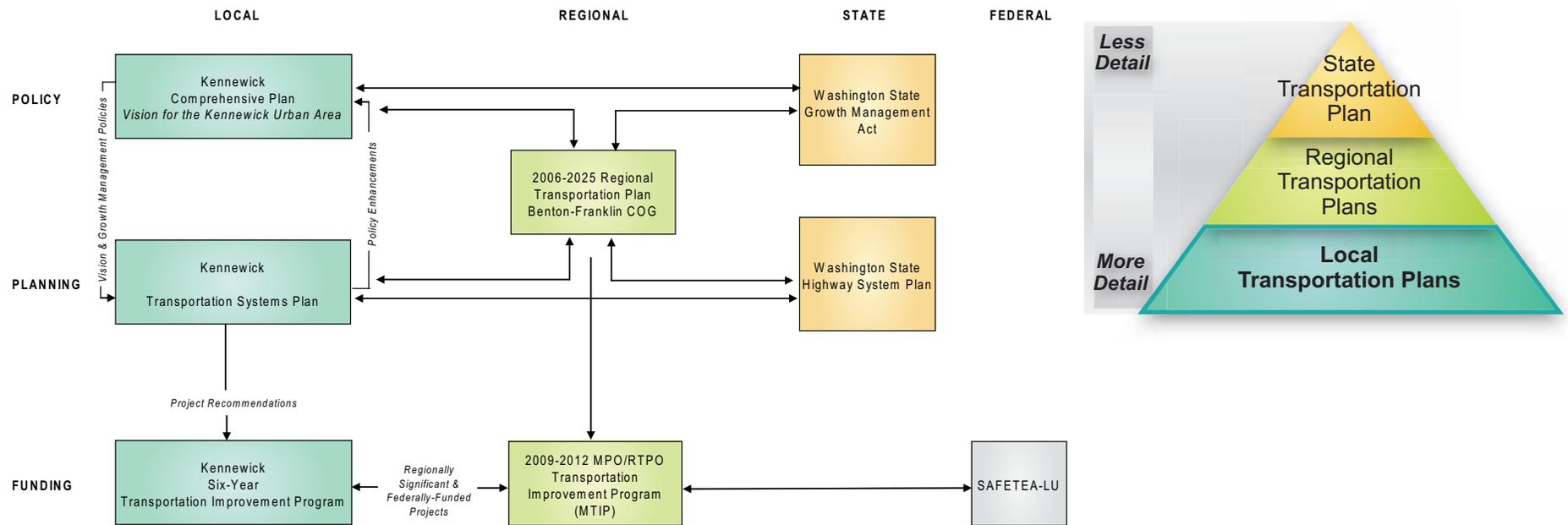
The Kennewick TSP has been developed to provide maximum, multi-modal mobility based on the currently adopted Comprehensive Plan. Land use and the transportation system have a cause and effect relationship. The type, density and design of developments place differing demands on the transportation system. The continued development in Kennewick as the center of local government, commerce and housing will serve as a good growth management tool for the City.

## Plan Implementation

The Kennewick TSP will serve as a portion of the Transportation Infrastructure element of the Kennewick Comprehensive Plan. The policies and projects contained in the Plan give the City direction on how to respond to land use and development proposals, what projects should have priority in the City's Six-Year Transportation Improvement Program, and under what policy framework specific regulations and standards should be developed.

**Exhibit 2-1** illustrates the relationship between the Kennewick TSP, Comprehensive Plan, Six-Year TIP, and other State, Regional and Federal policies, plans and funding programs.

### Exhibit 2-1 Kennewick Transportation Systems Plan – Relationship with Regional, State and Federal Plans



### Environmental Impact Policy

Kennewick’s 2008 comprehensive plan titled “Horizons” includes a general policy-level discussion of the environmental impacts of long-range transportation projects. The Horizons policy goals and objectives are included specifically in Chapter 3, and are supplemented with additional goals, objectives and policies in Chapter 4 (see Goal 4, pages 4-6 through 4-7) which are intended to minimize the negative transportation impact on the natural environment, air quality, noise quality, and fuel consumption.

## Endnotes

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1. *U.S. Census Bureau, 2007.*
2. *Expansion Management Magazine, April 2007.*
3. *Adopted by City Council March 3, 1999.*

Chapter 3

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# Background Policies & Principles





The Kennewick Transportation Systems Plan (TSP) is an integrated compilation of a number of sections, including background and policy principles, individual modal plans, a financial plan, and an implementation plan. **The Background and Policy Principles** section includes the summary goals and policies from the Kennewick Comprehensive Plan to guide the individual modal sections for a complete TSP.

The Comprehensive Plan policies relating to transportation are re-labeled as part of the TSP for consistency. By broad definition, the formulation of goals, objectives and policies is a fundamental step in the transportation planning process. Goals, objectives, and policies describe the desired end result of a transportation plan as well as directions on how to get there. More specifically, **goals** describe in broad, general terms a desired future condition, which is consistent with community ideals or vision; **objectives** are specific statements of particular ends, expressed in measurable terms that respond to the goals; and **policies** are statements that describe courses of action designed to achieve the goals and objectives.

## Kennewick Comprehensive Plan Goals and Objectives

Private automobiles are the predominant users of the roadways, but a complete transportation system must also consider the needs of other modes of travel. Bicycle, pedestrian, public transit, school bus, commercial vehicle, emergency vehicle, air, water, and rail services are also part of our region's transportation system. Land uses determine street design and classification. Generally street right-of-ways are obtained during new residential platting, or in commercial and industrial areas, during development review. Street linkages between established areas and proposed new ones are critical for mobility, access, and rapid response by emergency services. Determining future land uses will significantly affect the ability to forecast traffic volumes and required transportation projects. Projects and funding fit together into a multi-year financing plan for the Capital Improvement Plan (CIP) and the Transportation Improvement Plan (TIP).

Each of the Kennewick Comprehensive Plan Goals are cited

here and the *policies* are re-labeled as objectives and are referenced to the original Comprehensive Plan citation by a bold-faced “CP” number noted in parentheses at the conclusion of each *objective*. Furthermore, these objectives are categorized under one of the four Comprehensive Plan goals for transportation. The main emphasis of these goals and objectives is to guide the City's transportation-related decisions with a consistent and firm policy background.

This chapter also provides a summary of key policy principles by which Kennewick's level of service, concurrency management and possible transportation impact fee are to be implemented.

The Kennewick Comprehensive Plan “Horizons” (2008) identifies strategies and policies to address environmental impacts of transportation system improvements. These policies are re-iterated below in the goals and objectives. Additional environmental policy guidance is provided in Chapter 4 (Street System - see Goal 4 and supportive objectives and policies).

**GOAL 1:** *Develop a transportation system to serve the planned land use of the urban growth area and ensure it is coordinated with other jurisdictions and providers.*

### Objectives

- 1.1 *Obtain adequate streets in conjunction with subdivisions and development to promote street connectivity between neighborhoods. (CP-2)*
- 1.2 *Deny land use proposals that would reduce the LOS of the adjacent streets and cannot meet concurrency or establish a strategy to follow in the absence of concurrency. (CP-5)*
- 1.3 *Maintain a minimum of a 10-year projection of the future traffic volumes and arterial street capacity. (CP-15)*



Goals, objectives, and policies guide the implementation of the TSP.

**GOAL 2:** *Develop air, water, rail, pedestrian and bicycle systems to coordinate with the roadway system.*

### Objectives

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- 2.1 *Design multi-modal transportation systems based on regional priorities. (CP-4)*
- 2.2 *Link pedestrian and bicycle paths to open space corridors, park and recreation facilities and to systems of adjacent jurisdictions. (CP-7)*
- 2.3 *Integrate standards for handicap accessibility into pedestrian and bicycle facilities. (CP-9)*
- 2.4 *Encourage traffic reduction plans such as “park and ride” facilities, use of public transit, ride-sharing and staggered work hours for employees. (CP-10)*
- 2.5 *Encourage safe aviation facilities that benefit local commerce. (CP-11)*
- 2.6 *Encourage railroad infrastructure to support current & future economic activities. (CP-12)*

**GOAL 3:** *Coordinate transportation system improvements and level of service standards with other jurisdictions and providers.*

### Objectives

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- 1.1 *Support the Benton County-Wide Planning Policies applicable to transportation. (CP-1)*
- 3.2 *Maintain LOS standards & design that are regionally coordinated. (CP-6)*

**GOAL 4:** *Create and maintain a roadway system that promotes function, safety and aesthetics with minimum adverse environmental impacts.*

### Objectives

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- 1.1 *Use best management practices for transportation systems. (CP-3)*
- 1.2 *Encourage Homeowners Associations, citizen, and civic groups to develop and maintain neighborhood and city-wide pedestrian and bicycle facilities. (CP-8)*
- 4.3 *Increase aesthetics of the street environment through landscaping and streetscaping design. (CP-13)*
- 4.4 *Encourage sidewalks, streets, and streetscapes to be pedestrian friendly. (CP-14)*

## POLICIES

To achieve these objectives, the City of Kennewick can adopt a number of new policies.

### Transportation Systems Plan

#### Policy 1

The Kennewick Transportation Systems Plan incorporates the goals, objectives, policies, implementation strategies, plan maps, and project lists to guide the provision of transportation facilities and services in the Kennewick planning area. The Kennewick Transportation Systems Plan will serve as a component of the “Mobility Element” of the **Kennewick Comprehensive Plan**, and contain the following sections:

- Street System
- Pedestrian System
- Bicycle System
- Transit System & Transportation Demand Management
- Freight Mobility
- Air and Water Transport
- Financial Plan
- TSP Implementation

#### Policy 2

The Kennewick Transportation Systems Plan shall be updated as necessary to remain consistent with city-wide, regional and statewide plans.

### Connectivity and Circulation

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#### Policy 3

The vehicle, transit, bicycle, and pedestrian circulation systems shall be designed to connect major activity centers in the Kennewick planning area, increase the overall accessibility of downtown and other centers, as well as provide access to neighborhood residential, shopping and industrial areas, the Columbia River parks and local schools.

### Supportive of General Land Use Plan Designations and Development Patterns

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#### Policy 4

The provision of transportation facilities and services shall reflect and support the land use designations and development patterns identified in the **Kennewick Comprehensive Plan**. The design and

implementation of transportation facilities and services shall be based on serving current and future travel demand - both short-term and long-term planned uses.

#### **Policy 5**

The City of Kennewick shall encourage the expansion of transit services within the Kennewick urban area.

### **Regional Mobility**

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#### **Policy 6**

A balanced system of transportation facilities and services shall be designed for the Kennewick planning area to accommodate the regional mobility needs of residents, businesses, and industry.

### **Multi-Modal Transportation System**

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#### **Policy 7**

The transportation system for the Kennewick planning area shall consist of an integrated network of facilities and services for a variety of motorized and non-motorized travel modes.

### **Complete Streets**

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#### **Policy 8**

“The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable – children, elderly, and persons with disabilities – can travel safely within the public right of way.” Examples of how the Complete Streets policy may be implemented:

- Design and construct right-of-way improvements in compliance with ADA accessibility guidelines (see Policy 15).
- Incorporate features that create a pedestrian friendly environment, such as
  - narrower traffic lanes
  - median refuges
  - curb extensions (“bulb-outs”)

- Improve pedestrian accommodation and safety at signalized intersections by:
  - using good geometric design to minimize crossing distances and increase visibility between pedestrians and motorists
  - count-down pedestrian signals
  - timing signals to minimize pedestrian delay & conflicts
  - balancing competing needs of vehicular level of service and pedestrian safety (e.g., 2007 version of MUTCD to reduce design walking speed from 4ft./sec. to 3.5 ft./sec.)
- Reclaim street space for other uses through the use of “road diets”
  - e.g., convert 4-lane roadway to 3-lane roadway with marked bike lanes

### **Growth Management**

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#### **Policy 9**

The construction of transportation facilities in the Kennewick planning area shall be timed to coincide with community needs, and shall be implemented so as to minimize impacts on existing development. Prioritization of improvements should consider the City’s level of service standards and concurrency policies.

#### **Policy 10**

Off-site improvements to streets or the provision of enhanced pedestrian and bicycle facilities in the Kennewick planning area may be required as a condition of approval for land divisions or other development permits.



“The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable – children, elderly, and persons with disabilities – can travel safely within the public right of way.”

### **Transportation System Efficiency**

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#### **Policy 11**

The implementation of transportation system and transportation demand management measures, provision of enhanced transit service, and provision of bicycle and pedestrian facilities in the Kennewick planning area shall be

embraced by policy as the first choice for accommodating travel demand and relieving congestion in a travel corridor, before street widening projects are undertaken.

**Policy 12**

The Kennewick Transportation Systems Plan shall promote alternative commute methods that decrease demand on the transportation system, such as using transit, telecommuting, carpooling, vanpooling, using flexible work schedules, walking, bicycling, etc.

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**Transportation Safety**

**Policy 13**

The City of Kennewick shall make the design, construction, and operation of a safe transportation system for all modes of travel a high priority.

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**Public Safety**

**Policy 14**

The safe, rapid movement of fire, medical, and police vehicles shall be an integral part of the design and operation of the Kennewick transportation system.

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**Accessibility for Persons with Disabilities**

**Policy 15**

The Kennewick transportation system shall be designed with consideration of the needs of persons with disabilities by meeting the requirements set forth in the Americans with Disabilities Act (ADA).

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**Economic Development**

**Policy 16**

Supportive of the mobility needs of businesses and industry, the Kennewick transportation system shall consist of the infrastructure necessary for the safe and efficient movement of goods, services, and people throughout the Kennewick planning area. The Kennewick Transportation Systems Plan shall include consideration of ways to facilitate and manage the inter-modal transfer of freight.

**Policy 17**

The Kennewick Transportation Systems Plan shall promote methods that employers can utilize to: better facilitate employee commuting; to encourage employees to use alternative commute methods to the single occupancy vehicle.

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**Livability**

**Policy 18**

Transportation facilities in the Kennewick planning area shall be designed and constructed to mitigate noise, energy consumption, neighborhood disruption, economic losses to the private or public economy, and social, environmental or institutional disruptions, and to encourage the use of public transit, bikeways, sidewalks, and walkways.

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**Aesthetics and Streetscaping**

**Policy 19**

Aesthetics and streetscaping shall be a part of the design of Kennewick's transportation system. Streetscaping, where appropriate and financially feasible, including public art, shall be included in the design of transportation facilities. Various streetscaping designs and materials shall be utilized to enhance the livability in the area of a transportation project.

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**Intergovernmental Coordination and Consistency**

**Policy 20**

The City of Kennewick shall coordinate its transportation planning and construction efforts with those of the Benton-Franklin Council of Governments (BFCOG), the Washington State Department of Transportation (WSDOT), Ben Franklin Transit, Benton County and the Port of Kennewick. Kennewick's transportation plans shall be consistent with those developed at the regional and state level. The Regional Transportation Plan (RTP) shall be adopted as a component of the Kennewick Comprehensive Plan by reference.

The individual modal chapters of the Kennewick TSP set forth additional goals, objectives and policies which supplement the general goals and objectives contained in this chapter.

## Street Functional Classification & Standards

Roadways within a network are often grouped, or classified, with other roadways sharing similar characteristics of purpose, design, and function. Cities create functional classifications to ensure that roadways are built and maintained in accordance with their relationship to the surrounding land use and that adequate connectivity exists between roadways with lower capacities and more local access to roadways with higher capacities and greater circulation.

Kennewick Municipal Code 13.04.010 outlines four roadway classifications that are appropriate for the City of Kennewick. The four classifications include Principal Arterial, Minor Arterial, Collectors, and Local Streets. **Exhibit 3-1** provides descriptions of the City’s functional classifications and corresponding characteristics.

As can be seen in **Exhibit 3-1** a hierarchy exists in the functional classification structure that is based on a direct relationship between the function of the roadway and the surrounding land uses and the relationship between mobility and access. For example, commercial developments will generally locate along arterials or collectors due to a high amount of mobility with certain restrictions on access. Likewise, it is desirable to have parks, schools, and residential homes located along collector or local streets due to lower traffic volumes and a high degree of access. **Exhibit 3-2** illustrates the relationship between mobility and access using examples of streets within the City of Kennewick.

The functional classification of roadways within a City may change over time as the City expands and land uses change. The City of Kennewick is expected to experience growth in the next 20 years that will require that new roadways be built and that the classifications of some existing roadways be changed. **Exhibit 3-3** illustrates the roadway functional classification within the City.

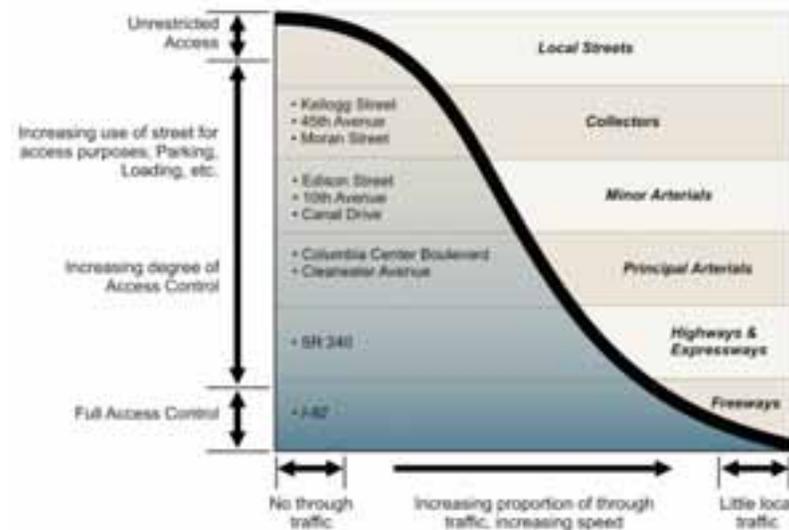
**Exhibit 3-4** sums the total roadway mileage, by functional classification, for the year 2025 using measurements from the GIS map of the City including areas recently annexed into

## Exhibit 3-1 Functional Classification Descriptions

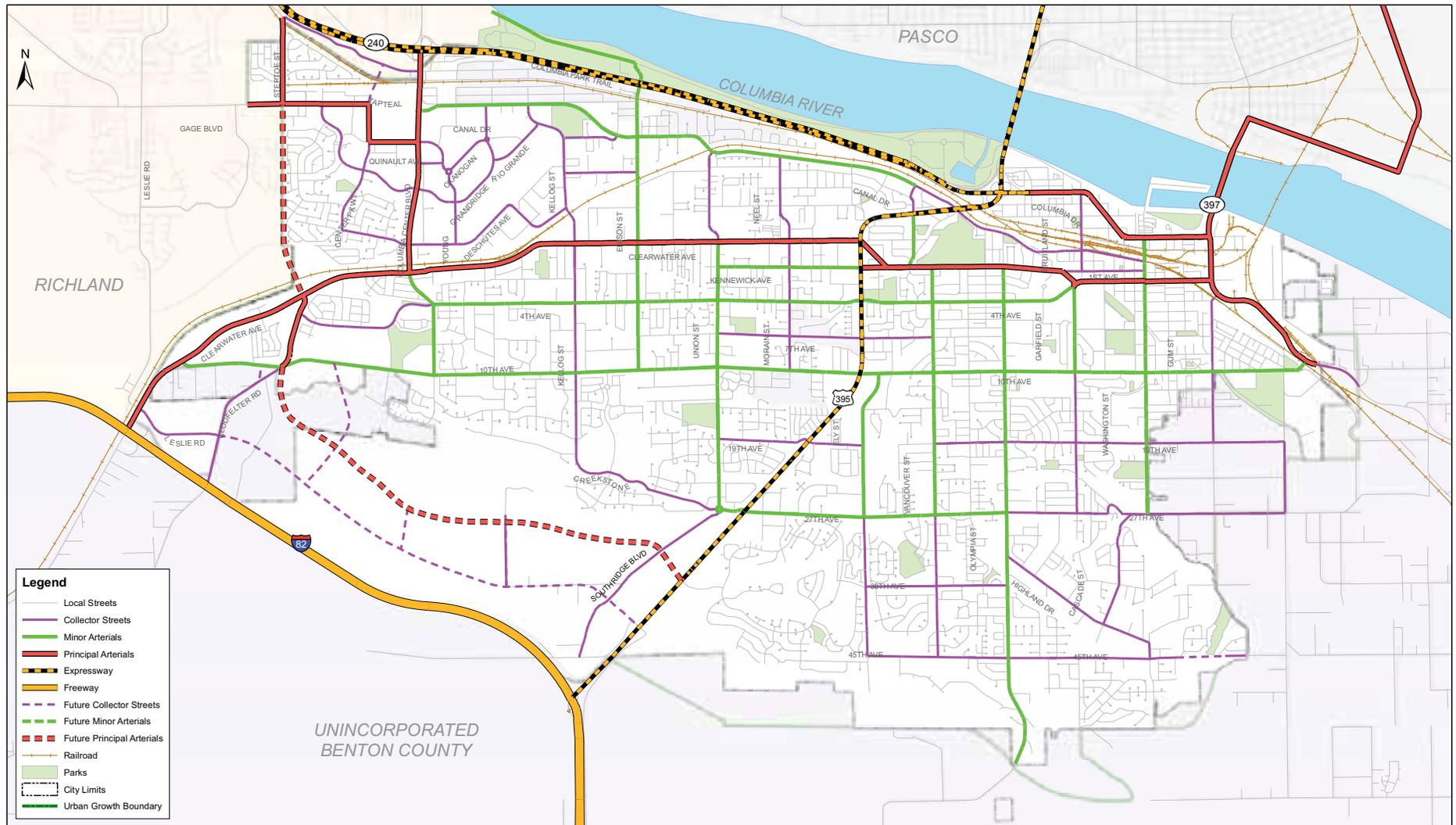
Classification	Description <sup>1</sup>
<b>Principal Arterial</b>	Principal arterials connect focal points of traffic generation throughout the City and are utilized to move traffic from one metro area or community to another. These streets primarily serve “through” traffic with limited access to abutting land use. Principal Arterials have high traffic volumes, and generally no on-street parking.
<b>Minor Arterial</b>	Minor arterials serve lesser points of traffic generation, and provide greater land access than principal arterials. These streets also serve to distribute traffic to and from principal arterials. Generally, minor arterials have moderate to high traffic volumes, some restriction of traffic movements, controlled driveway spacing, and limited on-street parking.
<b>Collectors</b>	Collectors distribute traffic between the local street system and the arterial street system. They provide land access as well as connections between neighborhoods and smaller community centers. Collectors typically have low to moderate traffic volumes and limited regulation of access control. On-street parking is usually limited.
<b>Local Streets</b>	Local streets primarily provide direct land access and generally discourage through traffic. These streets typically have low to moderate traffic volumes and few access controls. On-street parking is generally allowed.

1. Descriptions taken in part from City of Kennewick Municipal Code, 13.04.010

## Exhibit 3-2 The Relationship between Mobility and Access



### Exhibit 3-3 Roadway Functional Classification



the City. Approximately 73 percent of the streets within the City will be Local Streets while Principal Arterials account for roughly 4 percent of roadways. In addition to Local Streets and Arterials, there are several state roadways that run through the City comprising 3 percent of the total mileage.

### Other Jurisdiction Classifications

Three other jurisdictions manage roadways that tie into or pass through the City of Kennewick including the City of Richland, Benton County, and WSDOT. City of Richland roadways include Gage Boulevard, Tapteal Drive, Steptoe Street, and Leslie Boulevard. Benton County roadways include the new CR 397 intertie south of Olympia Street while key WSDOT roadways include SR 240, SR 397, I-82, and US 395. All existing inter-jurisdictional routes are consistent in classification.

### Exhibit 3-4 Roadway Milage by Functional Classification

Type	Mileage	Percentage	FHWA Guidelines
State Highway	7.96	2.6%	None
Principal Arterial	14.03	4.5%	5 to 10%
Minor Arterial	40.87	13.2%	10 to 15%
Collector	29.01	9.4%	5 to 10%
Local Access Roads	175.63	56.9%	65 to 85%
Planned Principal Arterial	4.49	1.5%	Combine with Existing Facilities
Planned Minor Arterial	0.60	0.2%	
Planned Collector	6.11	2.0%	
Planned Local Roads	30.00*	9.7%	
<b>TOTALS</b>	<b>308.70</b>	<b>100%</b>	

\* Estimate

SOURCE: City Of Kennewick, December 2008.

The city's street design standards identify the amenities needed along the roadway by street classification.



### Street Standards

Street standards are created based on roadway functional classification to ensure that the function of the roadway is reflected in the design of the roadway. Street standards ensure that street design is consistent with the look and feel of the surrounding land use, meets motorist expectations for the area through which they are driving, and meets the safety requirements of the City and other agencies. Street standards also incorporate design principles that account for the safe movement of pedestrians and cyclists.

Street standards provide design professionals and developers the necessary information to design and construct roadways to the City’s desired standards. Street standards specify the widths and number of lanes recommended for each classification as well as the landscaping, shoulder widths, pedestrian facilities, curb, and gutter requirements necessary to match the surrounding land uses with the function of the roadway. **Exhibit 3-5** lists typical street standards for the City

of Kennewick for roadways constructed after the year 2005. The City of Kennewick has street standards for five different functional classification types including:

- Principal Arterial
- Minor Arterial Type B
- Major Collector
- Collector
- Residential/Neighborhood Streets

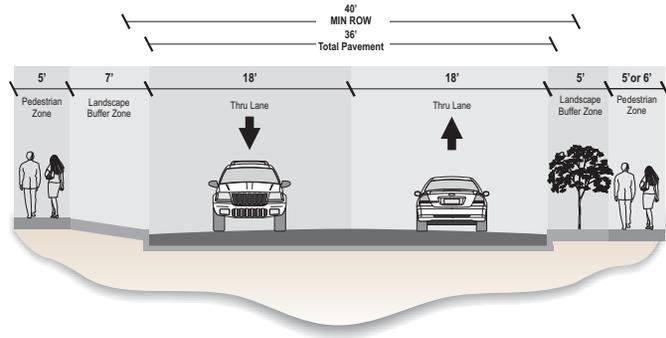
Street standards changed after January 1, 2005, when streetscape buffering was added as a key component to each design standard as well as utility easement specifications. The sidewalk, driveway construction, and planning area requirements were also expanded and included in the design standards. **Exhibit 3-6** illustrates street standard cross-sections for streets built after January 1, 2005.

### Exhibit 3-5 Typical Street Standards

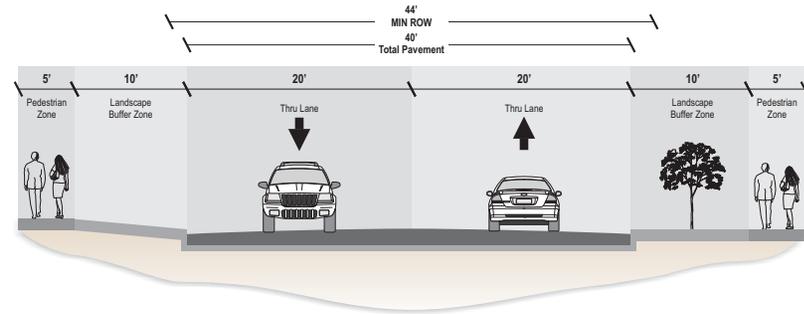
	Principal Arterial	Minor Arterial	Major Collector	Collector	Neighborhood Streets
<b>Functions</b>	1. Intra-community and metro area streets. 2. Primarily for traffic movement.	1. Intra-community and metro area streets. 2. Primarily for traffic	1. Intra-community and metro area streets.	1. Collect neighborhood traffic and feed it into arterials.	1. Direct land access. 2. Limited on-street parking.
<b>Access Control</b>	Limited to abutting lots not fronting on collectors or local streets	Limited to abutting lots not fronting on collectors or local streets	Limited to abutting lots not fronting local streets.	Limited access control.	Few access controls.
<b>Daily Volume</b>	< 40,000	< 25,000	1,500 to 20,000	500 to 16,000	Under 1,500
<b>Number of Lanes</b>	5 to 6	4 to 5	3 to 4	2 to 3	2
<b>Design Speed</b>	40 to 55 mph	30 to 40 mph	25 to 35 mph	25 to 30 mph	25 mph
<b>Minimum Right of Way</b>	74 feet	52 feet	48 feet	44 feet	40 feet
<b>Paved Width</b>	70 feet	48 feet	44 feet	40 feet	36 feet
<b>Truck Usage</b>	Yes	Yes	Yes	Limited	Limited
<b>Landscaped Buffer</b>	Yes	Yes	Yes	Yes	Yes
<b>Sidewalks</b>	Yes	Yes	Yes	Yes	Yes

### Exhibit 3-6 Street Standard Cross Sections

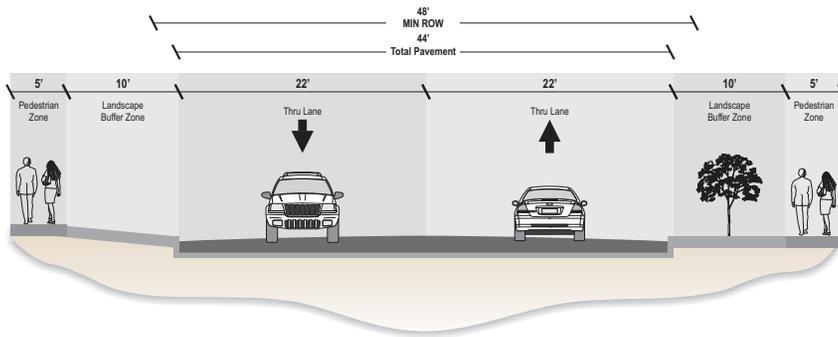
**\*Residential/Neighborhood Streets**



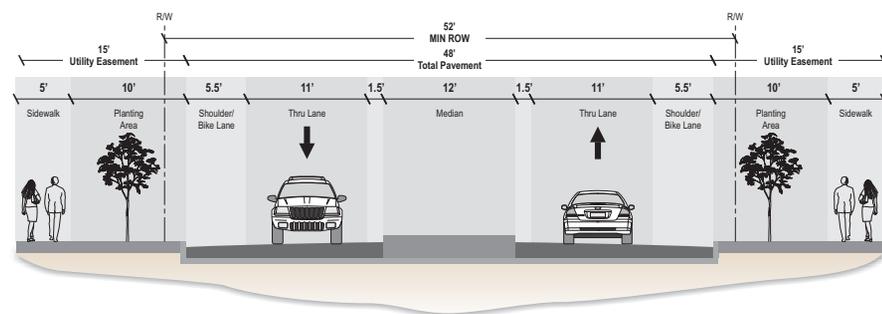
**\*Collector**



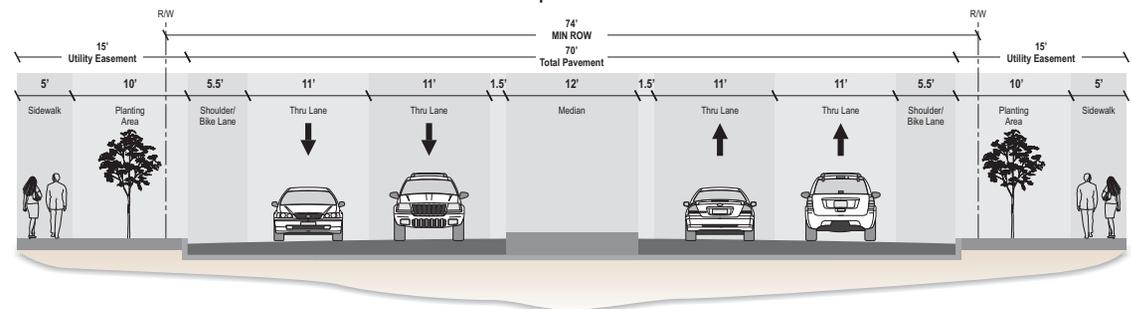
**\*Major Collector**



**\*Minor Arterial**



**\*Principal Arterial**



*\*For 2005 and newer. See City of Kennewick Street Design Standards for more detailed cross-section dimensions.*

## Level of Service

Level of service (LOS) standards measure the performance of the transportation system and establish the basis for the concurrency requirements in the Growth Management Act (GMA), while also being used to evaluate impacts as part of the State Environmental Protection Act (SEPA). Agencies are required to “adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a transportation facility to decline below the standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with development.” (RCW 36.70A.070(6) (b)). Therefore, setting the LOS standard is an essential component of regulating development and identifying planned improvements for inclusion in the Transportation Systems Plan.

### Level of Service Definitions

Level of service (LOS) is both a qualitative and quantitative measure of roadway operations. Level of service, as established by the Highway Capacity Manual uses an “A” to “F” scale to define the operation of roadways and intersections as follows:

**LOS A:** Primarily free flow traffic operations at average travel speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delays at signalized intersections are minimal.

**LOS B:** Reasonably unimpeded traffic flow operations at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted and control delays at signalized intersections are not significant.

**LOS C:** Stable traffic flow operations. However, ability to maneuver and change lanes may be more restricted than in LOS B, and longer queues, adverse signal coordination, or both may contribute to lower than average travel speeds.

**LOS D:** Small increases in traffic flow may cause substantial increases in approach delays and, hence decreases in speed. This may be due to adverse signal progression, poor signal

timing, high volumes or some combination of these factors.

**LOS E:** Significant delays in traffic flow operations and lower operating speeds. Conditions are caused by some combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and poor signal timing.

**LOS F:** Traffic flow operations at extremely low speeds. Intersection congestion is likely at critical signalized intersections, with high delays, high volumes, and extensive vehicle queuing.

### Level of Service Standard

The City typically applies the LOS standards to weekday PM peak hour conditions for its arterials and collectors within the City. However, evaluation of other time periods may be required based on the type and location of development and the existing conditions of the local transportation network. As areas are annexed, the City’s standards are applied. The following summarizes the current minimum LOS standards established by the City.

- LOS D - Major approaches at signalized intersections.
- LOS E - For all minor street approaches at unsignalized intersections or driveways.
- LOS F – May be acceptable at unsignalized intersections or driveways when a second access point is within ¼ mile operating at LOS D or better and which is controlled by a traffic signal or roundabout. An LOS F may also be acceptable in situations where the side street volumes are low and no adverse impact on safety is expected.

If expected funding for improvements to meet future transportation needs is found to be inadequate and the City will not be able to meet their adopted LOS standard, then the City may pursue one or more of the following options:

- Lower the LOS standard for the system or for portions of the system that cannot be improved without a significant expenditure;
- Revise the City’s current land use element to reduce density or intensity of development so that the LOS standard can be met; or;
- Phase or restrict development to allow more time for the necessary transportation improvements to be completed.

## State Highway Level of Service Standards

The City of Kennewick is served by four state highways. Three of the highways, I-82, SR 240, and US 395, are classified as Highways of Statewide Significance (HSS). SR 397 is classified as a non-HSS facility. According to WSDOT's Highway Systems Plan, the LOS standards are set forth by state law. State law sets LOS D for HSS facilities in urban areas and LOS C for HSS facilities in rural areas. I-82, SR 240, and US 395 are HSS facilities and are located within the urban area, so the LOS D standard applies. GMA concurrency requirements do not apply to HSS facilities.

LOS standards for non-HSS routes, such as SR 397, are adopted by the Benton-Franklin Council of Government (BFCOG) and WSDOT. The LOS standard for non-HSS facilities are the same as the HSS facilities in the Tri-Cities region. Cities are required to include the LOS standards for all state routes in the transportation element of their comprehensive plan. The BFCOG certifies the transportation element, and ensures that the state highway LOS standards are included. State law is silent on whether agencies include or exempt non-HSS facilities from local concurrency requirements.

The City's LOS standards are consistent with the State and regional standards for state highways within the City.

## Level of Service Methodology

For signalized, unsignalized, and roundabout intersections, the LOS is calculated using the procedures described in the latest edition of the Highway Capacity Manual for the average weekday peak hour conditions. More detail in how LOS is measured is described under Title 13-08 of the City of Kennewick Administrative Code.

## Concurrency

The concurrency provisions of the GMA require local governments to have a concurrency management program to monitor and identify future facility and service needs based on its LOS standards. Concurrency is a policy to determine whether adequate public facilities are available to serve new developments. "Local jurisdictions must adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a transportation facility to decline below standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or

LOS	What it Looks Like	
<b>A</b> <b>B</b>		<b>Free Flow</b>
<b>C</b> <b>D</b>		<b>20-55 seconds of delay per vehicle</b>
<b>E</b> <b>F</b>		<b>*Capacity</b>  <b>Forced Flow</b>

Levels of Service and analysis procedures are defined by the Highway Capacity Manual (Transportation Research Board, 2000)

strategies to accommodate the impacts of development are made concurrent with the development”. (RCW 36.70A.070).

The term “concurrent with the development” is defined to mean that improvements or strategies are in place at the time of development, or that a financial commitment is in place to complete the improvements or strategies within six-years of development.

To ensure that future development will not cause the City’s transportation system performance to fall below the adopted LOS, the jurisdiction must do one or a combination of the following: modifying the land use element, limiting or “phasing” development, requiring appropriate mitigation, or changing the adopted standard.

### Concurrency Requirements

The City has adopted concurrency requirements as part of Chapter 4.12 of the Kennewick Municipal Code. A finding of concurrency is necessary as a condition of development. Concurrency approval is required for the following types of permit applications:

- (a) *Preliminary plat (subdivision of ten or more residential lots);*
- (b) *Site plans designated as Tier 2 or Tier 3;*
- (c) *Any other land use that generates 50 or more peak hour trips per day (based upon the latest ITE Trip Generation Manual or other data, as approved by the City’s traffic engineer).*

Tier 2 permits are projects that exceed 1,500 sq. ft. but are not greater than 4,000 sq. ft., requires less than 20 parking spaces and do not require grading/excavation of 500 cubic yards or more. Tier 2 permits exclude all new commercial and industrial buildings or additions that exceed 50% of the assessed value of the improvements on the site.

Tier 3 permits are projects that exceed 4,000 sq. ft., and/or require 20 parking spaces or more, and/or require grading/excavation of 500 cubic yards or more. Tier 3 permits include all new commercial, industrial buildings, multi-family dwellings (3 dwelling units and greater), and additions that exceed 50% of the assessed value of the existing improvements on the site.

“Local jurisdictions must adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a transportation facility to decline below standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with the development”. (RCW 36.70A.070).

**The City has implemented a concurrency program consistent with state requirements.**

### Monitoring Concurrency

The City of Kennewick may require a traffic impact study (TIS) for developments that impact the transportation system. The TIS guidelines are located in Title 13-08 of the Kennewick Administrative Code. The purpose of a TIS report is to document the purpose, procedure, findings, conclusions and recommendations of the transportation analysis performed to support the proposed development. The report is used by City staff to evaluate the proposed development with respect to appropriate land use approval criteria and establish conditions of approval and any transportation mitigation measures. The review also identifies whether concurrency has been achieved. City staff also use information in the report to track those locations that are approaching the City’s LOS standard and where concurrency might be triggered in the future. The City Traffic Engineer will generally determine when a Traffic Impact Study is required.

### Transportation Impact Fee

The City is considering adding a transportation impact fee program as part of the Transportation Systems Plan, as allowed under GMA, to help fund transportation system improvements needed to serve growth. Transportation impact fees are optional under GMA. Currently, development projects in the City may be required to help fund transportation improvements through three different regulatory programs. These programs include:

- Frontage improvements/development regulations
- State Environmental Policy Act (SEPA)
- Concurrency

These existing programs are requirements that basically cover transportation impacts directly resulting from development; they do not specifically address the long-term transportation system needs resulting from the forecast growth. The City prepared an extensive analysis of potential use of TIFs which is summarized in **Appendix A**.

Chapter 4

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# Street System





The streets within a city are like the blood vessels in a living organism. Like the arteries that facilitate the movement of life sustaining blood in a living organism, the arterials and streets of a city facilitate the movement of freight, pedestrians, bicyclists, motorists, and passengers. A healthy arterial and roadway network allows laborers to travel to and from work, grocery store shelves to be re-supplied, children to be transported to and from school, and emergency services to reach those that desperately need them. A street system that is inadequate or poorly maintained can retard the growth of a city and decrease the livability of the community.

In order for a street system to be properly maintained there must be a plan in place where deficiencies are identified and methods for improvement established. The purpose of this chapter of the Kennewick Transportation Systems Plan is to outline the characteristics of the existing street system and identify projects that will be needed to preserve and expand the infrastructure and maintain safe and efficient operations in years to come while ensuring that the City of Kennewick remains a vibrant and healthy place to live. The following topics are presented in this chapter:

- Goals & Policies,
- Roadway Physical Characteristics,
- Traffic Safety,
- Traffic Volumes,
- Maintenance,
- Capital Street Projects, and
- Transportation System Management.

## Goals, Objectives and Policies

The City of Kennewick's 2006 Comprehensive Plan – Horizons lists four Goals and supporting Policies relating to streets. In the formation of the Kennewick TSP, additional policies were identified as essential to the Plan's success. It also became evident that policies relating to the street system needed to be consolidated around four areas: growth management, intergovernmental coordination, local street circulation and environmental. Policies relating to pedestrian, bicycle, transit, and freight facilities are discussed in the corresponding chapters of the TSP.

The following street system goals, objectives and policies are intended to guide the street system, replacing those already included in the Comprehensive Plan.

**GOAL 1:** *Ensure that transportation facilities necessary for future growth are provided, concurrent with growth and coordinated with the Kennewick's Land Use and Transportation needs.*

### Objective No. 1.1 Coordination with Land Use Element

*The Transportation Element of the Comprehensive Plan should be integrated with the Land Use Element.*

#### Policy 1.1.1

Development proposals should incorporate transportation improvements (emphasizing dedicated rights-of-way) in accordance with the City's TSP and as necessitated by the impacts of the proposal.

#### Policy 1.1.2

Transportation facilities should be developed in an efficient, safe, and environmentally sensitive manner and should support desired development patterns.

#### Policy 1.1.3

The City should preserve right-of-way for future projects in the City and in conjunction with other agencies as necessary.

### Objective No. 1.2 Concurrency

*The City shall ensure that concurrency requirements are met.*

#### Policy 1.2.1

Level-of-service standards should be used to evaluate the transportation impacts of long term growth and concurrency. The City has adopted the following standards for the average weekday PM peak hour:

- LOS D - Major approaches at signalized intersections.
- LOS E - For all minor street approaches at unsignalized intersections or driveways.

**The following topics are presented in this chapter:**

- Goals & Policies,
- Roadway Physical Characteristics,
- Traffic Safety,
- Traffic Volumes,
- Maintenance,
- Capital Street Projects, and
- Transportation System Management.

- LOS F – May be acceptable at unsignalized intersections or driveways when a second access point is within ¼ mile operating at LOS D or better and which is controlled by a traffic signal or roundabout. An LOS F may also be acceptable in situations where the side street volumes are low and no adverse impact on safety is expected.

#### **Policy 1.2.2**

The City shall monitor concurrency and require the construction of infrastructure improvements within six years of development approval. The availability of public facility capacity to support development concurrent with the impacts of such development can include any of the following: (1) the facilities are in place at the time a development permit is issued; (2) the facilities are under construction at the time a development permit issued, and the facilities will be in place when the impacts of the development occur; (3) development permits are issued subject to the condition that the facilities will be in place when the impacts of the development occur; or (4) the City has in place binding financial commitments to complete the public facilities within six years.

#### **Policy 1.2.3**

In accordance with the City's Transportation Improvement Plan, and based on the level of impact generated by a proposed development, conditions of approval applicable to a development application should include:

- Improvement of on-site transportation facilities,
- Improvement of off-site transportation facilities, and
- Transportation Demand Management strategies.

#### **Policy 1.2.4**

Under concurrency requirements, transportation facilities include both motorized and non-motorized facilities, and improvement of transportation facilities includes construction in accordance with the City's minimum design standards.

#### **Policy 1.2.5**

Development impacts that may warrant off-site improvements include those that create safety concerns, or those that increase a facility's operations beyond the adopted level of service standard.

#### **Policy 1.2.6**

The City should charge a mitigation fee (transportation impact fee) to address transportation impacts.

#### **Policy 1.2.7**

The City should not grant exemptions from concurrency requirements, except under extreme circumstances.

#### **Policy 1.2.8**

The City should identify and improve sub-standard roads based upon a priority system which accounts for traffic demand, safety, surrounding land uses, and City annexation plans and goals.

### **Objective No. 1.3 Multi-modal**

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*The City should seek to find the optimal balance between the different modes that comprise the transportation system.*

#### **Policy 1.3.1**

The City should optimize its transportation facilities to seek a balance between them, consistent with travel demand and so that each mode complements the other.

#### **Policy 1.3.2**

Bus, auto, and non-motorized travel should be coordinated and linked to form a multimodal system providing access to regional transportation systems while ensuring the quality, safety, and integrity of local commercial districts and residential neighborhoods.

**GOAL 2:** *Work with neighboring jurisdictions and regional agencies in creating and maintaining the regional transportation system.*

### **Objective No. 2.1 Inter-local Traffic Flows**

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*The City should seek to maximize the efficiency of Inter-local Traffic Flows.*

#### **Policy 2.1.1**

The City should develop inter-local agreements with neighboring jurisdictions (i.e. WSDOT, Benton County, and the City of Richland) to establish mutually acceptable LOS

standards and mitigation strategies for traffic impacts on essential commuter facilities. The interlocal agreement will serve to:

- Provide a coordinated approach to addressing sub-regional transportation issues,
- Minimize AM and PM peak-hour travel times along intercity commuter routes,
- Establish an inter-local impact mitigation policy. Acceptable mitigation strategies may include:
- Contribution of impact fees to projects that address traffic impacts on the identified essential commuter facilities,
- Provision of additional capacity on general purpose or HOV facilities to mitigate impacts on the identified commuter facilities.

#### **Policy 2.1.2**

The City's transportation decisions, strategies and investments should take into consideration, be coordinated with, and be complementary to those of adjacent jurisdictions.

#### **Policy 2.1.3**

The City's transportation LOS standards should be coordinated with neighboring cities and regional agencies.

#### **Policy 2.1.4**

The City should coordinate with Washington State, BFCOG, Benton County, Ben Franklin Transit, neighboring cities, and private interests to support regional transportation planning.

#### **Policy 2.1.5**

The City should work with Washington State, Benton County and the City of Richland to establish that the capacity of roadways affecting access to and from the city limits is being used efficiently.

#### **Policy 2.1.6**

The City should work with neighboring jurisdictions to define LOS standards for commute routes.

#### **Policy 2.1.7**

When the City enters into an inter-local agreement with a neighboring jurisdiction or WSDOT the City should deny development proposals that create a significant adverse

transportation on the access routes outside the city limits unless adequate mitigation is in place. Concurrency and level of service standards should be determined in the interlocal agreement and compatible with the Kennewick Comprehensive Plan and Growth Management Act.

**GOAL 3:** *Improve local circulation and emergency access throughout the community while addressing the importance of neighborhood quality and safety.*

#### **Objective No. 3.1 Circulation**

*To the greatest extent possible, a cohesive traffic circulation system should be established throughout the City.*

##### **Policy 3.1.1**

A safe and convenient network of residential streets should serve neighborhoods. When assessing the adequacy of local traffic circulation, the following considerations are of high priority:

- Enhancement of emergency vehicle access,
- Reduction of emergency vehicle response times,
- Reduction of speeds in neighborhoods,
- Address of other neighborhood concerns such as safety, noise and aesthetics, and
- Court and hearing examiner decisions.

##### **Policy 3.1.2**

Cul-de-sac streets in new development should only be allowed when connecting neighborhoods streets are not feasible due to existing land uses, topography, or other natural and physical constraints.

##### **Policy 3.1.3**

The City should limit the placement of facilities or physical barriers (such as buildings, utilities, and surface water management facilities) to allow for the future construction of streets that facilitate the establishment of a safe and efficient traffic circulation network.

##### **Policy 3.1.4**

To support the efficient and safe movement of goods and freight, the City should establish and identify truck routes



The City shall balance improvements in traffic operations and circulation with traffic calming measures that encourage a safe and reasonable mix of motorized and non-motorized traffic.

to the City’s major destinations. Such routes should be located along arterial roadways and should avoid potential impacts on neighborhood streets.

**Policy 3.1.5**

The improvement of roadway circulation must not impair the safe and efficient movement of pedestrians and bicycle traffic.

**Policy 3.1.6**

Efforts should be made to consolidate access points to properties along principal arterial, minor arterial, and collector roadways.

**Policy 3.1.7**

The City shall obtain adequate streets in conjunction with subdivisions and development to promote street connectivity between neighborhoods.

**Objective No. 3.2 Traffic Calming**

*Traffic Calming. The City shall balance improvements in traffic operations and circulation with traffic calming measures that encourage a safe and reasonable mix of motorized and non-motorized traffic.*

**Policy 3.2.1**

The City should continue to implement its Traffic Calming Program that includes the following components:

A procedure for receiving and acknowledging traffic calming requests,

- Traffic calming evaluation procedures,
- Traffic calming design criteria,
- Traffic calming authorization procedure,
- Traffic calming implementation procedure.

**Policy 3.2.3**

In conjunction with residential roadway improvements, the City should encourage traffic and pedestrian safety improvements that may include, but are not limited to, the following safety and livability enhancements:

- Traffic circles,
- Speed humps,
- Painted or raised crosswalks,
- Landscaping barriers between roadway and non-motorized uses,
- Landscaping that promotes a residential atmosphere,
- Sidewalks and trails, and
- Dedicated bicycle lanes.

**Policy 3.2.3**

Local residential streets should be designed to prevent or discourage their use as shortcuts for through traffic. Local traffic control measures should be coordinated with the affected neighborhood.

**Policy 3.2.3**

Implementation of traffic calming should not result in the diversion of trips to other existing local access roadways.

**GOAL 4:** *Minimize negative transportation impact on the natural environment, air quality, noise quality, and fuel consumption.*

**Objective No. 4.1 Transportation Demand Management**

*The City should seek to minimize the overall number of vehicle-miles-traveled city-wide through the use of demand management strategies (see Chapter 7, Transit System and Transportation Demand Management).*

**Objective 4.2 Transportation System Management**

*The City should seek to increase lane capacity by increasing the efficiency of existing roadways through Transportation System Management, in accordance with the following policies:*

**Policy 4.2.1**

Prior to increasing roadway capacity along a corridor, the City should ensure that existing capacity and intersection operations are at maximum efficiency, through the application of Transportation System Management investments. These measures may include, but are not limited to, the following:

- Rechannelization or re-striping,
- Adding turn lanes,

- Signal interconnects and optimization,
- Turning movement restrictions, and
- Access management strategies.

#### **Policy 4.2.2**

The City should identify access management requirements for new development and implement access management strategies for existing development for principal and minor arterials to reduce congestion and increase safety as outlined in the Kennewick Administrative Code.

#### **Policy 4.2.3**

The City should regularly collect traffic counts and coordinate with BFCOG in the update of their regional travel demand model.

#### **Policy 4.2.4**

The City should regularly update the roadway inventory, such as utilizing photo imaging process and integrating it with the City Geographical Information System (GIS).

### **Objective No. 4.3 Impervious Surface Area**

*The City should seek to minimize the amount of impervious surface area that is built in the course of new infrastructure construction, in accordance with the following policies:*

#### **Policy 4.3.1**

Design Standards should be revised as needed to address reductions in impermeable surfaces, consistent with safety and operating standards.

#### **Policy 4.3.2**

Innovative materials should be utilized to reduce impermeable surfaces.

### **Objective No. 4.4 Environmental Preservation**

*The City should seek to minimize the amount of natural resources that are impacted by infrastructure, in accordance with the following policies:*

#### **Policy 4.4.1**

Low impact roadway design, construction, and maintenance methods should be used first to avoid and second to minimize negative impacts related to water quality, air quality, and noise in neighborhoods.

#### **Policy 4.4.2**

Streets should be located, designed, and improved in a manner that will conserve land, materials and energy. Impacts should be limited to the minimum necessary to achieve the transportation objective.

#### **Policy 4.4.3**

The City shall comply with the federal and state Clean Air Act air quality standards.

#### **Policy 4.4.4**

The City should support the use of clean burning fuels through regional organizations.

### **Objective No. 4.5 Aesthetics**

*The City should seek to enhance the aesthetic value of the public street rights-of-way through its development code and street standards.*

#### **Policy 4.5.1**

The City shall update and maintain its street design standards to increase aesthetics of the streets environment through landscaping and streetscape design.

### **Objective 4.6 Safety and Maintenance**

*The City should seek to improve public safety and develop a maintenance plan to preserve its investment in the public rights-of-way.*

#### **Policy 4.6.1**

The City shall create and implement a maintenance plan to preserve the existing transportation infrastructure.

#### **Policy 4.6.2**

The City shall promote safety through the routine inspection



The City should seek to minimize the amount of impervious surface area that is built in the course of new infrastructure construction.

and rehabilitation of existing signage, roadway striping, and street lighting; identifying and rectifying existing deficiencies as they are identified.

## Roadway Physical Characteristics

The roadway physical characteristics of a City's street system provide the basis for the function of the roadway system and the amount of traffic that can be safely and efficiently accommodated each day. The roadway physical characteristics should be directly related to the functional classification of the roadway and should be reflected in the street design standards. The following roadway characteristics are described in this section:

- Travel Lanes
- Traffic Signal and Roundabout Locations
- Speed Limits

Other important roadway physical characteristics, such as sidewalks and bike lanes or shy lanes and shoulder widths, are discussed in Pedestrian and Bicycle System chapters of this report.

### Exhibit 4-1 Average Crash Rates 2000 - 2004

North/South Street	East/West Street	Average Crash Rate <sup>1</sup>
Edison Street	Metaline Avenue	1.48
Clearwater Avenue	Leslie Road	1.30
Columbia Center Blvd.	Okanogan Place	1.25
Columbia Center Blvd.	Quinault Avenue	1.18
Columbia Center Blvd.	Canal Drive	1.10
Fruitland Street	Kennewick Avenue	1.06
Edison Street	Canal Drive	0.99
Fruitland Street	Canal Drive	0.99
Edison Street	Clearwater Avenue	0.92
Columbia Center Blvd.	Clearwater Avenue	0.83
Columbia Center Blvd.	Grandridge Blvd.	0.81
Vancouver Street	10th Avenue	0.78
Union Street	10th Avenue	0.76

1. Collisions per million entering vehicles based on a 5-year average.

## Travel Lanes

**Exhibit 4-3** shows the existing number of travel lanes along the roadways within Kennewick. The majority of the roadways in the City of Kennewick have one travel lane in each direction. Principal and minor arterials often have two travel lanes in each direction with a center left-turn lane. Columbia Center Boulevard even has three lanes in each direction between SR 240 and Quinault Avenue with further widening proposed all the way to Deschutes Avenue to the south.

## Traffic Signal and Roundabout Locations

**Exhibit 4-3** shows the locations of traffic signals and roundabouts in Kennewick. Also included are locations of intersections controlled by supplementary flashing intersection control beacons. The City has 59 traffic signals that are typically located along principal and minor arterials, especially in the commercially zoned areas of the City. There are also four supplementary flashing intersection control beacons located on the east side of the City. Where signals or roundabouts are not shown at intersections, other signage exists to control traffic, including all-way stops, two-way stops, and yield signs.

The City was one of the early adopters of roundabouts on a large scale in Washington and currently has fifteen roundabouts located throughout the City. A roundabout is generally considered the first option over a traffic signal when an intersection upgrade is necessary, unless the intersection is in the middle of a coordinated network of signals or sufficient right-of-way is unavailable.

## Speed Limits

Posted speed limits within the City range from 60 mph on state highways to 20 mph on local streets. **Exhibit 4-4** shows the speed limits on major roadways within the City. Most local streets have speed limits of 25 mph with a select few posted at 20 mph. Collectors such as Kellogg Street, 19th Avenue, Deschutes Avenue, and Center Parkway have speed limits in the 30 to 35 mph range. Minor arterials such as 27th Avenue, Canal Drive, Kennewick Avenue, and Edison Street have speed limits between 30 and 40 mph. Principal arterials such

as 1st Avenue, Columbia Center Boulevard, and Clearwater Avenue typically have speed limits that range between 30 and 45 mph. State highways have the highest speed limits, up to 55 mph along US 395 as it enters the City from the south and 60 mph along SR 240 which borders the north side of the City.

## Traffic Safety

Traffic safety is an important factor in determining priority projects for future project planning. For the City of Kennewick, traffic safety was evaluated for major roadways and intersections over a five year period, from 2000 to 2004. Data was obtained from City Staff and WSDOT and only contains information for those collisions reported to the City and State Highway Patrol. The following safety data are discussed in this section:

- Fatalities
- Intersection Safety Analysis
- Roadway Safety Analysis
- WSDOT High Accident Corridors
- Pedestrian and Bicycle Accidents

### Fatalities

During the years 2000 to 2004, five fatalities occurred within the City. Three occurred at intersections including the intersection of Neel Street and Canal Drive in 2003, Clearwater Avenue and Leslie Road in 2004, and US 395 at 27th Avenue in 2004. In addition, a fatality occurred on Clearwater Avenue near Perry Street, and a bicyclist was killed along Clearwater Avenue near 10th Avenue in 2003.

### Intersection Safety Analysis

The method for analyzing intersection safety was to review the 5-year (2000 to 2004) crash data. The crash rate calculated for intersections was based on the average number of accidents per million entering vehicles (MEV). Crash rates above 0.75 MEV are shown in **Exhibit 4-1**.

### Roadway Safety Analysis

Roadway segment crash rates were calculated based on the number of accidents per million vehicle miles (MVM) traveled. The results of the roadway segment analysis are

summarized in **Exhibit 4-2**. A 5-year average crash rate of 4.00 was selected in order to focus on the locations that have the highest rates. The crash rates do not include crashes that occur at intersections of collectors or arterials with other collectors or arterials. These roadway segments were identified by City Staff and included on the list.

Collisions per million vehicle miles based on a 5-year average. There are several corridors that have multiple sections on the above list: Columbia Center Boulevard, Edison Street, Kennewick Avenue, and 19th Avenue. Also, street segments near US 395 appear on the list a number of times, along 27th Avenue, Clearwater Avenue, Vista Way, and Kennewick Avenue.

### Exhibit 4-2 2000 – 2004 Roadway Section Average Crash Rate

Roadway	Segment	Average Crash Rate
Grandridge Blvd.	Okanogan Place to Canal Dr.	9.90
Clearwater Avenue	US 395 to Morain St.	6.04
Edison Street	Metaline St. to Canal Dr.	4.27
Columbia Center Blvd.	Quinault Ave. to Canal Dr.	5.30
27th Avenue	US 395 to Union St.	4.92
Washington Street	1st Ave. to Columbia Dr.	4.78
Columbia Center Blvd.	Clearwater Ave. to Deschutes Ave.	4.77
Quinault Avenue	Columbia Center Blvd. to Center Pkwy	4.44
Vista Way	Kennewick Ave. to US 395	4.38
Kennewick Avenue	US 395 to Morain St.	4.37
Edison Street	Metaline Ave. to Clearwater Ave.	4.27
US 395	W 10th Ave to W Clearwater Ave	4.13
Kennewick Avenue	Yelm St. to US 395	4.00

1. Collisions per million vehicle miles based on a 5-year average.

Exhibit 4-3 Traffic Controls and Number of Travel Lanes

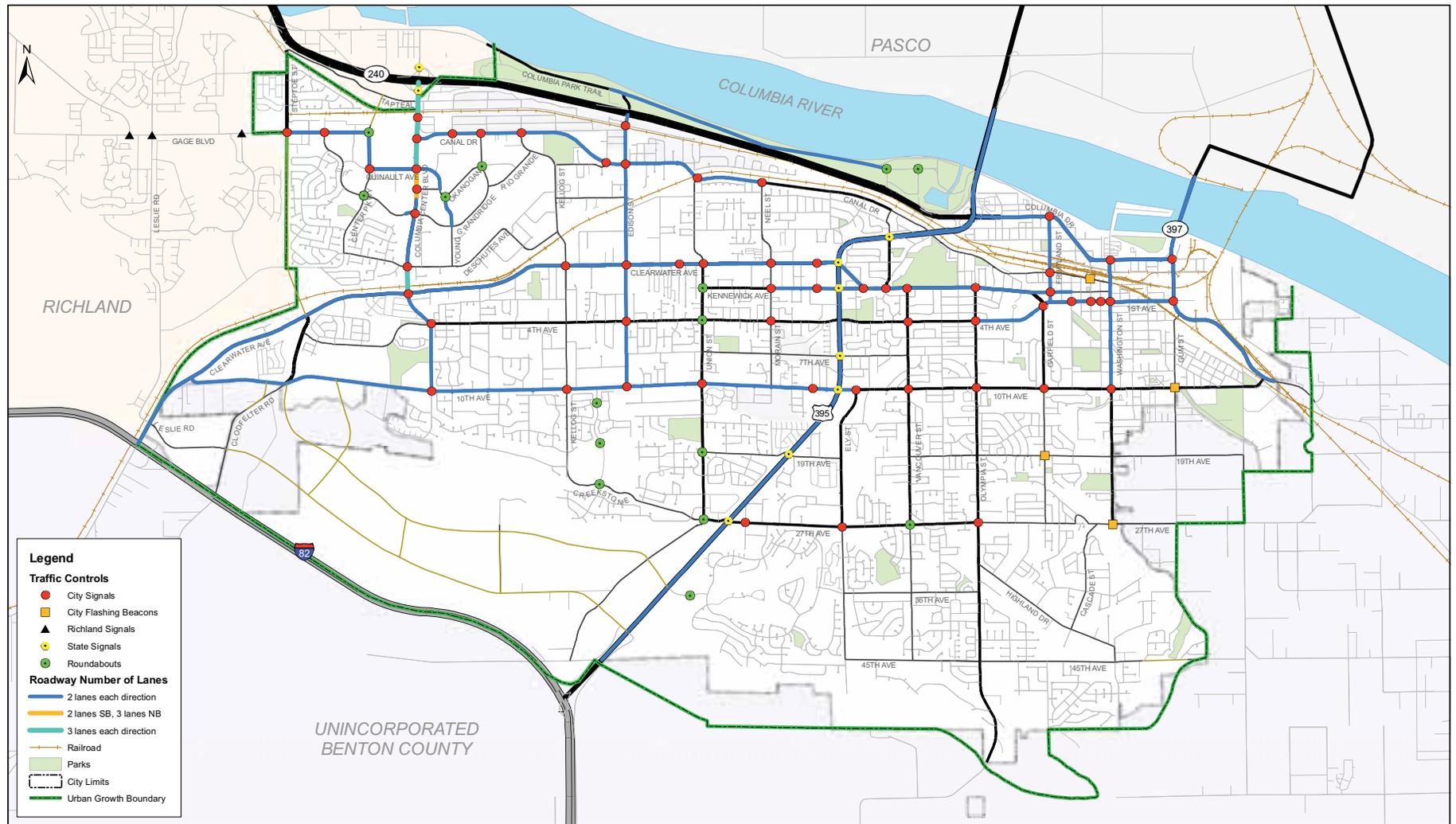
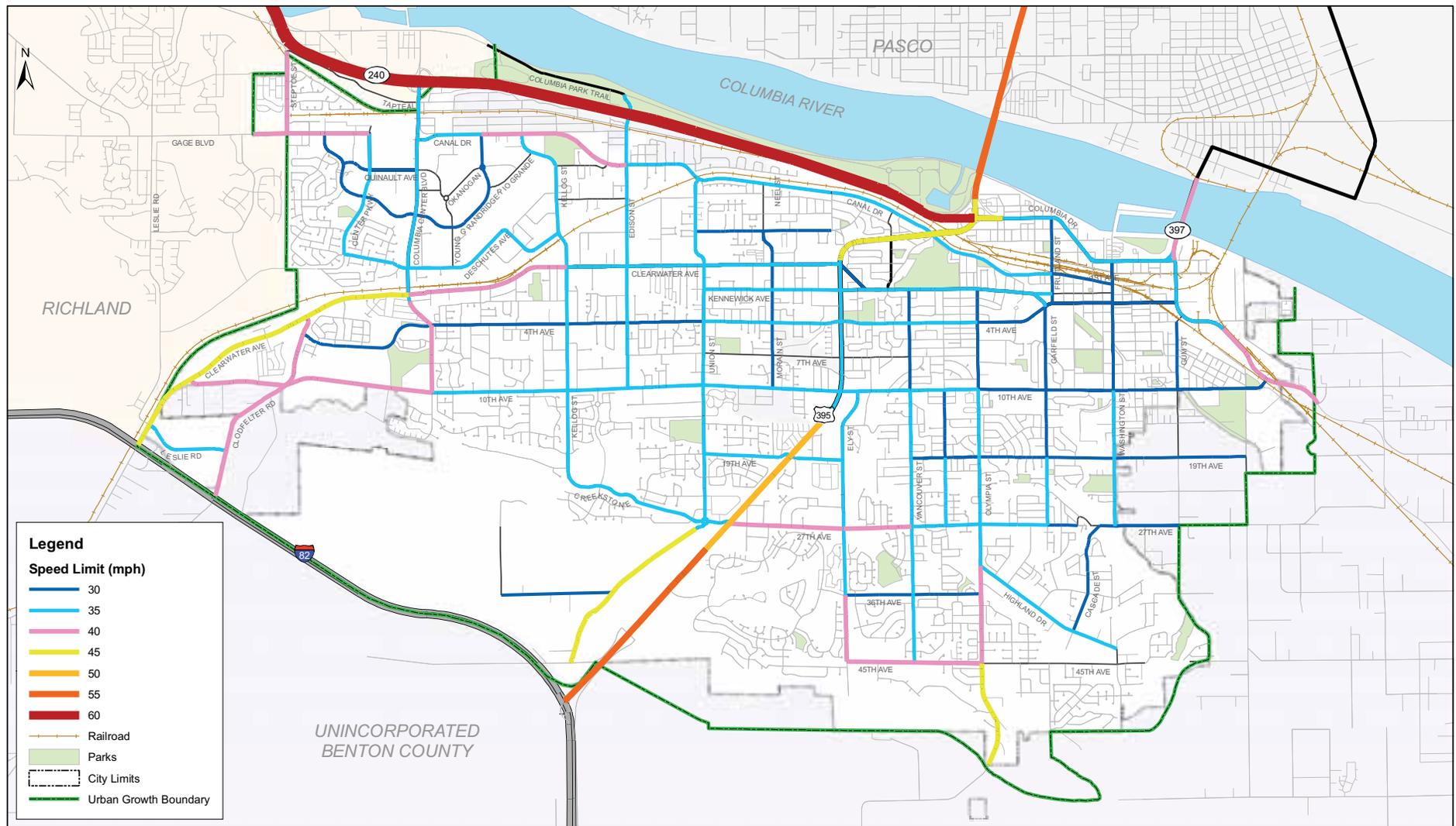


Exhibit 4-4 Speed Limits



### WSDOT High Accident Locations

In addition to intersections and roadway segments identified above, WSDOT has identified two High Accident Locations (HALs) along US 395 within the City as shown in **Exhibit 4-5**. HALs are defined as roadway segments less than one-tenth of a mile long that have experienced a higher than average rate of severe accidents during the previous two years compared to similar classes of highways within the state. Accidents are rated by assigning points based on the severity of the collision. If the minimum number of accidents and severity points are met for a one-tenth of a mile section, WSDOT calculates a severity rate. Locations that rank above a critical

severity rate, as defined by WSDOT for individual classes of highway, become HALs. The two identified locations within the City are near 27th Avenue (MP 14.90 to 14.96) and 10th Avenue (MP 16.10 to 16.17) along US 395. The second location is also identified previously within a roadway segment with a high crash rate.

### Exhibit 4-5 WSDOT High Accident Locations (2002 to 2004)

Highway & Approximate Location	Beginning MP	Ending MP
US 395 at 27th Avenue	14.90	14.96
US 395 at 10th Avenue	16.10	16.17

*Definition: HALs are defined as roadway segments less than one-tenth of a mile long that have experienced a higher than average rate of severe accidents during the previous two years compared to similar classes of highways within the state*

### Pedestrian/Bicycle Collisions

Pedestrian and bicycle collisions have occurred at several locations within the City between 2000 and 2004 along high accident arterial corridors. The roadways with the highest amount of ped/bike crashes were US 395 with four, SR 397 with two, and Quinault Avenue with two. Other locations were along Clearwater Avenue, at the intersection of Vancouver Street and 19th Avenue, and at the intersection of Washington Street and 1st Avenue.

### Existing Traffic Volumes

Existing weekday daily and peak hour traffic volumes were collected in October of 2005 as part of the City’s annual traffic count inventory. Automated tube counts collected daily traffic information along key arterials and manual turning movement counts were collected for the PM peak hour at

major intersections throughout the City. Traffic data was also obtained from WSDOT for locations along US 395 and SR 240. PM peak hour traffic data were collected between the hours of 4 to 6 PM in the evening.

### 2005 Weekday Daily Traffic Volumes

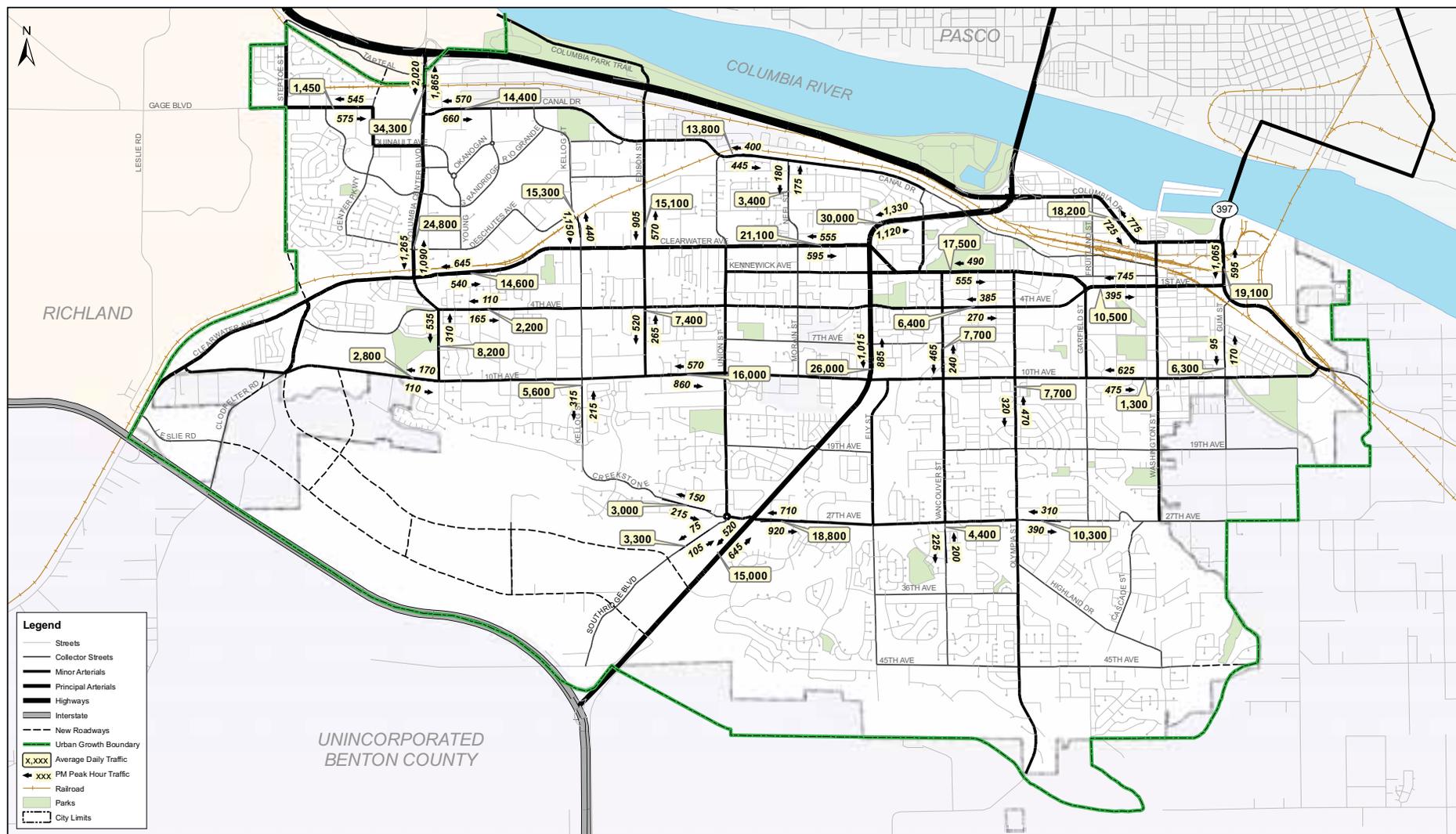
The 2005 daily traffic volumes, illustrated in **Exhibit 4-6**, indicate that the State Highways carry a significant amount of traffic within and around the City. US 395 accommodates approximately 56,000 vehicles per day south of the Blue Bridge, and SR 240 carries approximately 44,000 vehicles per day near the western city limits. The City arterials that carry a large number of daily traffic volumes include Columbia Center Boulevard south of SR 240 with volumes between 25,000 and 36,000 vehicles per day while Edison Street, north of Canal Drive, carries approximately 22,000 vehicles per day. Other major corridors, such as Clearwater Avenue west of US 395, serve about 26,000 vehicles per day west of Fruitland Street. Columbia Drive serves over 18,000 vehicles per day. In general, the average daily traffic volumes are higher in the northern portion of the City. Though traffic has fluctuated up and down due to development patterns and changes in the roadway networks, city-wide traffic growth has been about 0.5 percent over the past four years, although growth rates of 10 to 20 percent have been recorded in rapidly developing areas.

Weekday daily traffic volumes represent a typical weekday and don’t always capture seasonal fluctuations or fluctuations due to events such as concerts or sporting events. Traffic volumes on some City commercial corridors such as Columbia Center Boulevard, Clearwater Avenue, Gage Boulevard, and others experience traffic volume increases of between 10 to 25 percent during peak shopping periods such as Thanksgiving through New Years.

### 2005 PM Peak Hour Volumes

PM weekday peak hour traffic volumes, as illustrated in **Exhibit 4-6**, account for between 10 to 20 percent of daily traffic with most major corridors averaging 15 percent of daily traffic. The roadways with the highest PM peak hour volumes mirror those described in the previous section.

Exhibit 4-6 2005 Weekday Daily and PM Peak Hour Traffic Volumes



## Development of the Travel Forecasts

A travel demand forecasting model was developed to assist in defining future transportation system needs. It is based on the Benton-Franklin Council of Governments (BFCOG) regional model, but is focused on the City of Kennewick. The BFCOG regional model was used as a starting point, although it was significantly modified and refined within the City of Kennewick in order to reflect specific transportation issues and future growth projections for the City.

The model uses the TransCAD software package and forecasts weekday PM peak hour traffic volumes based on the 2025 land use forecasts. The weekday PM peak hour typically has the highest overall travel demands and therefore, provides the basis for determining overall transportation improvement needs to support growth. The model covers all of the surrounding urban areas, including the Cities of Richland, Pasco, and West Richland. The model interfaces directly with BFCOG land use to account for growth from locations external to the City. All major transportation corridors in the region are included in the model. The model refinements were limited to the areas in and around the City of Kennewick. The modifications included refining the model zone structure to provide more detail in the City, updating existing and forecast land use data, and adding more detail to the model's transportation system to allow more detailed evaluation of collector road needs.

The model was calibrated to match existing base year traffic volumes (2005) and then used to develop the 2025 traffic forecasts. City, County, and State transportation improvement projects likely to be funded and built by 2025 were included in the future model. The improvements are consistent with those assumed in the BFCOG regional model. Further network and land use modifications were made to the Kennewick model in the Southridge subarea and are primarily the only locations where the regional and City model assumptions differ.

## Identification of Future Needs

The travel forecasts were used to identify and evaluate the necessary long-term transportation improvement projects

needed to support the Comprehensive Plan. The identification of future needs included the analysis of future baseline traffic volumes, an assessment of existing and future level of service (LOS) deficiencies, and the development of future traffic volumes assuming the identified transportation improvement projects are in place.

## Baseline Travel Forecasts

Year 2025 PM peak hour volumes were generated by the City of Kennewick travel demand model for baseline conditions. Future baseline traffic volumes are based on the assumption that only capital improvements which are currently funded are accounted for when developing the travel forecasts. Based on the analysis of baseline conditions, improvement projects are then identified to address existing issues and future LOS deficiencies.

Under baseline conditions, major new connections within and around Southridge are not assumed to be constructed, which results in high traffic growth along corridors such as Southridge Boulevard, US 395, 10th Avenue, and Columbia Center Boulevard. The Steptoe Street extension is also not assumed to be constructed which impacts the other north-south arterials such as Columbia Center Boulevard, Edison Street and Leslie Road. New access points to Southridge on the east side will force vehicles to use Southridge Boulevard as a main access roadway to reach US 395. Generally the baseline travel forecasts indicated a high amount of traffic volume growth along all the major corridors in the vicinity of the Southridge subarea.

## Assessment of Existing and Future Deficiencies

An LOS evaluation was performed for all the major intersections within the City to identify existing and future LOS deficiencies. The LOS analysis was performed for the average weekday PM peak hour in the City of Kennewick. The detailed results of the LOS analysis are summarized in Appendix B. The LOS analysis shows that under existing conditions, all signalized or roundabout controlled intersections operate at LOS D or better. Only a few major stop controlled intersections are anticipated to operate below LOS D, with the notable

locations at the SR 240 / Edison Street interchange ramps.

An LOS analysis was also conducted for the 2025 horizon year similar to the analysis conducted for the existing traffic conditions. The results of the future baseline LOS analysis were used to develop the framework for the recommended transportation network, and ultimately, the long-term project list. **Exhibit 4-7** highlights the intersection locations forecast to operate below LOS D under baseline conditions. It then identifies how those locations will operate assuming completion of the long-term transportation improvements identified in **Exhibits 4-9 and 4-10**. The with improvements scenario highlights how new roadway connections in Southridge and intersection improvements throughout the City would address all the baseline LOS deficiencies.

### 2025 Average Daily and PM Peak Hour Traffic Volumes – With Improvements

As new roadway connections in the Southridge area are made and other improvements constructed throughout the City, traffic volumes can be assumed to shift to account for improved circulation and operations. The travel demand model was updated to account for the improvements identified in **Exhibits 4-9 and 4-10**. The resulting 2025 average daily and PM peak hour traffic volumes are shown in **Exhibit 4-8**. The daily traffic volumes were estimated by applying the ratio of 2005 PM peak hour volumes to 2005 daily traffic volumes multiplied by the 2025 PM peak hour traffic volumes.

Daily traffic volumes increased on most corridors throughout the City with one notable exception being Edison Street near the SR 240 interchange with a reduction of around 2,000 vehicles a day. The reduction along Edison Street will occur as Southridge develops and the capacities of the roadways into and out of the Southridge area, such as the new Steptoe Street corridor, are made available to motorists accessing the southern areas of the City.

## Maintenance

Maintenance is vitally important to the function, life-span, quality, and long-term user costs of roadways, intersections, and other infrastructure components. Poorly maintained roadways costs more to fix in the long run and degrade safety. Poorly maintained traffic signs and signals can increase the frequency of crashes and increase delay. Maintenance costs cover such things as channelization, striping, sign replacements, vegetation removal, pothole repair, crack seals, chip seals, or overlays, and roadway or bridge reconstruction.

Maintenance can also improve conditions for pedestrians and cyclists as cracks and upheavals in sidewalks are repaired and the shoulders of roadways are swept and kept clear of debris. More pedestrians and/or cyclists are likely to use roadways and sidewalks that are properly maintained, safe, and attractive thereby reducing vehicular traffic. The City should continue to allocate annual budget resources to maintain and preserve the existing infrastructure in a cost-effective manner.



Maintenance is vitally important to the function, life-span, quality, and long-term user costs of roadways, intersections, and other infrastructure components.

Exhibit 4-7 2025 Baseline and With Improvement Levels of Service

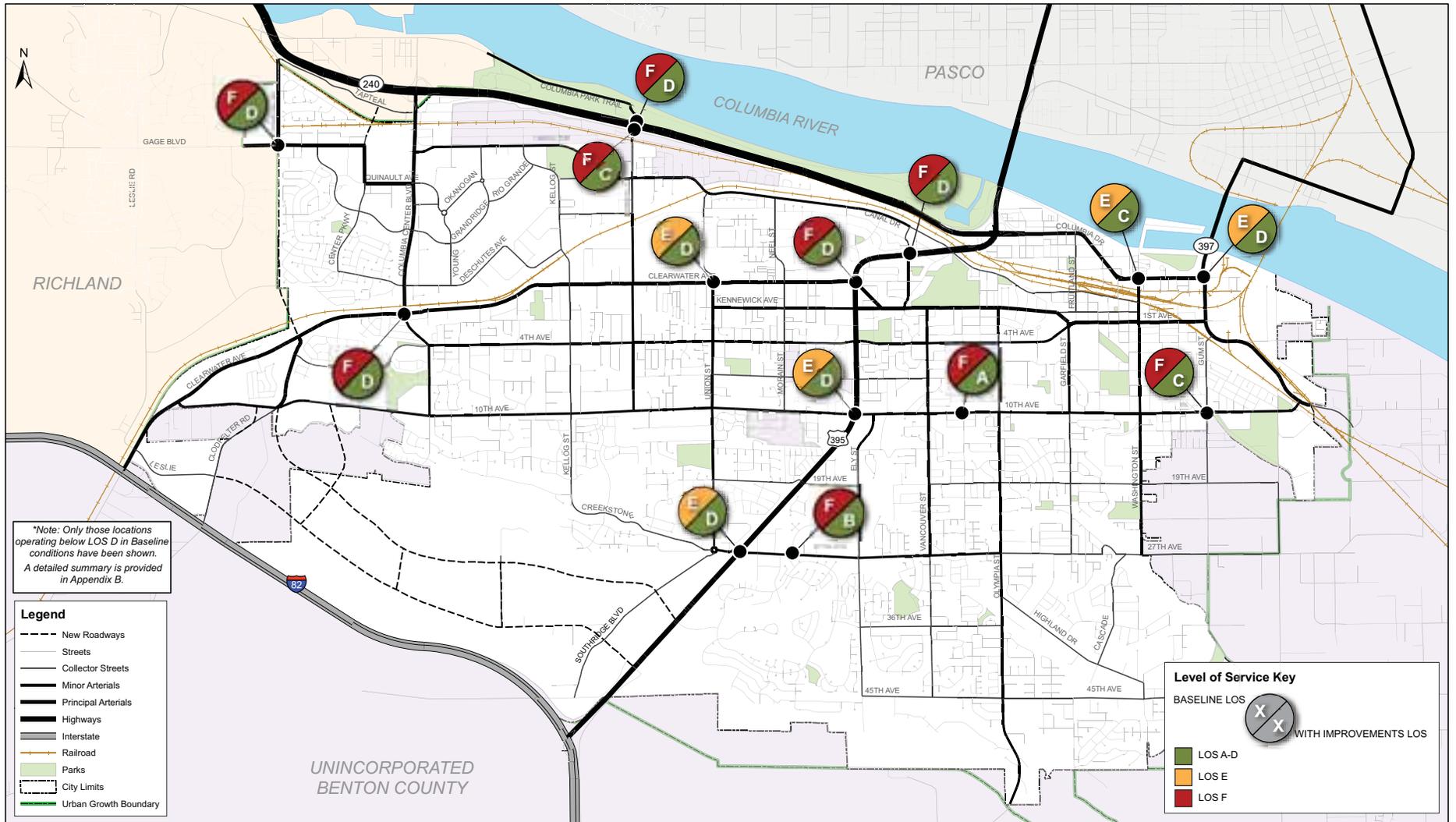
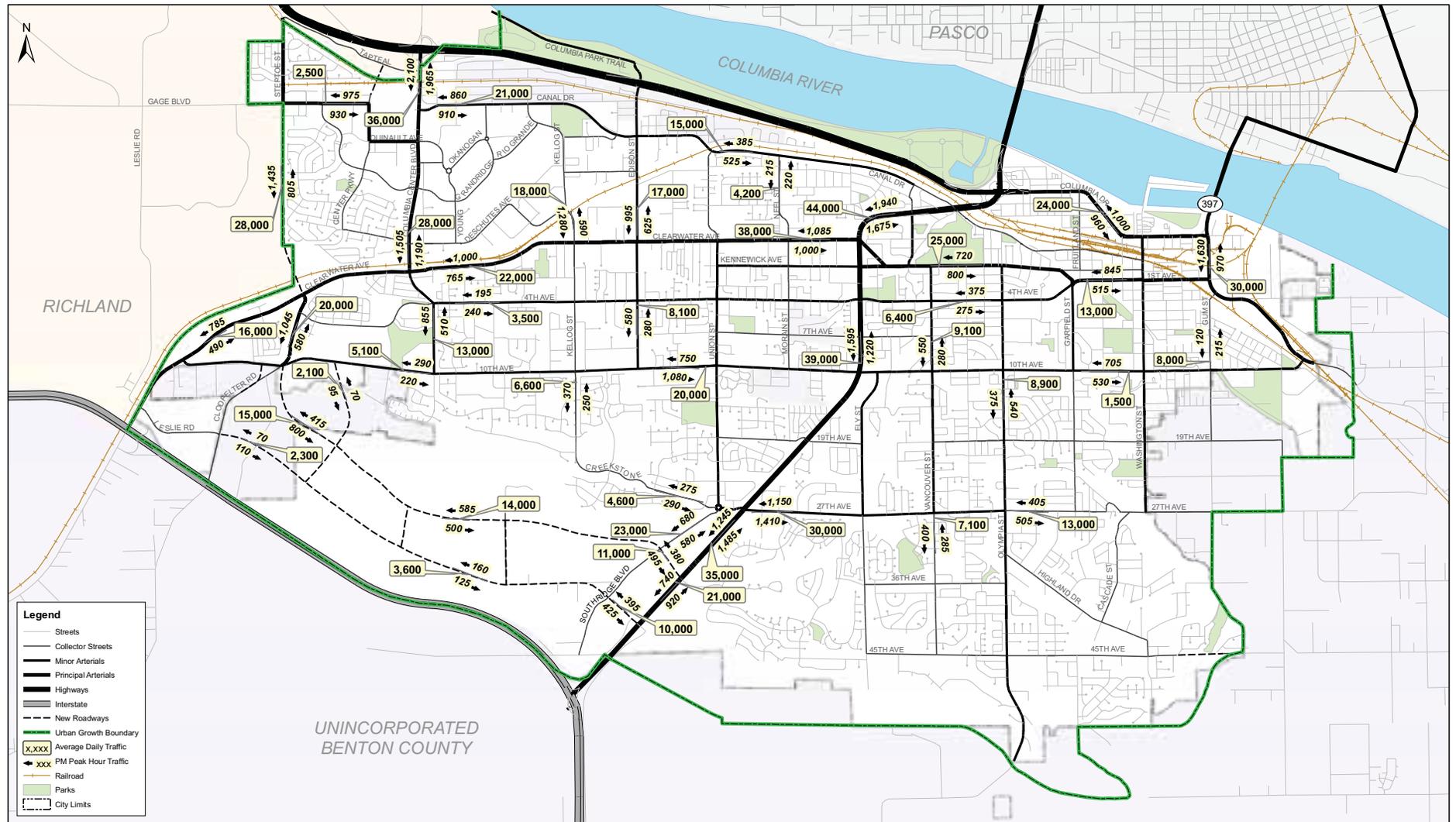
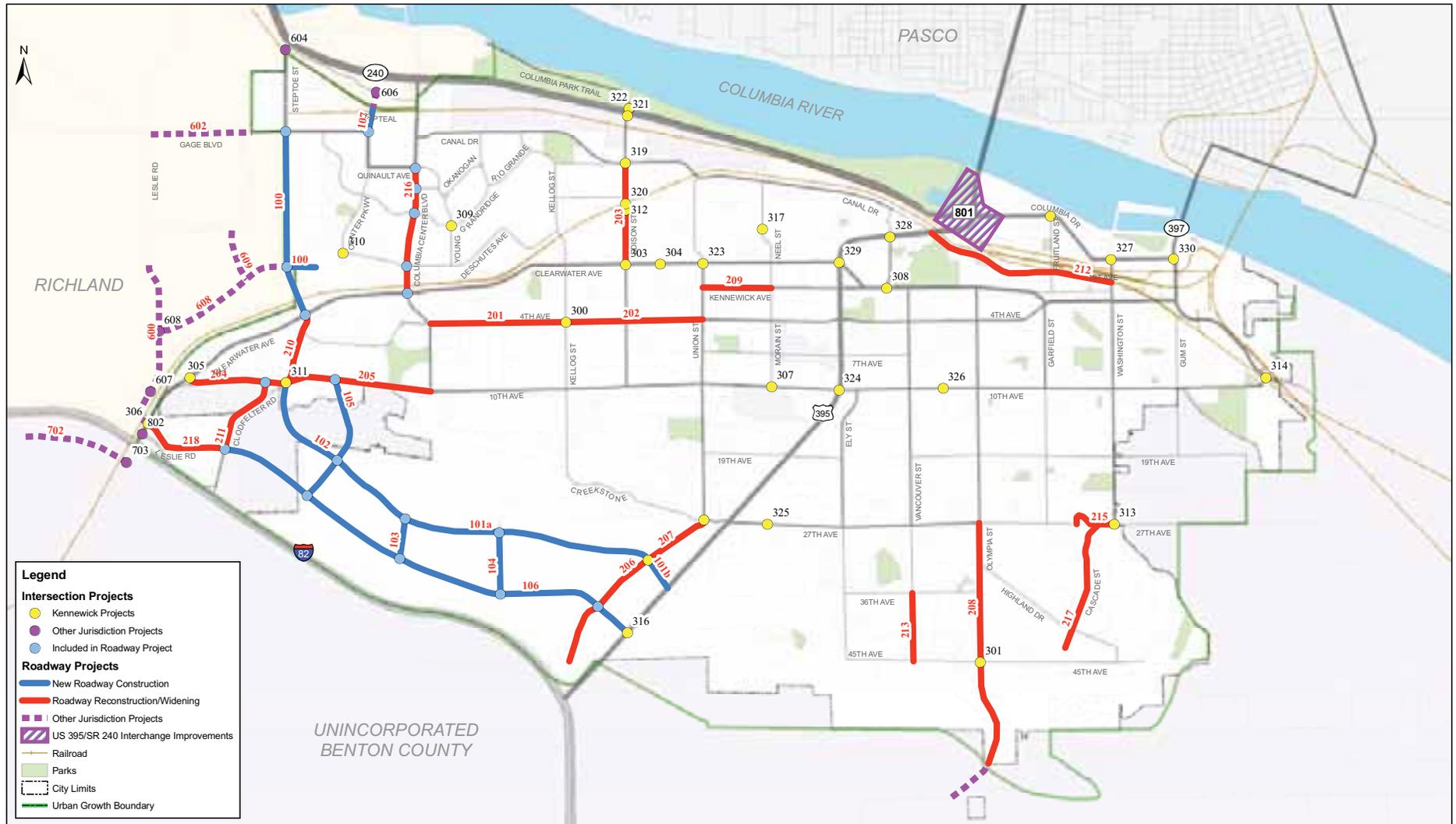


Exhibit 4-8 2025 Average Daily and PM Peak Hour Traffic Volumes – With Improvements



### Exhibit 4-9 Long-term Street Improvement Project Map



## Exhibit 4-10 Long-term Street Improvement Project List

Project Type	MAP ID	Project Name	Project Limits	Project Description	2007 Total Cost (\$1,000's)	Comments
New Roadway Construction	100	Steptoe Street	Gage Boulevard to Clearwater Avenue	Construct a new 4 to 5-lane roadway including sidewalks, curbs, street lights, landscaping and pedestrian & bicycle provisions. Traffic control improvements include signal modifications at Gage Blvd and new traffic signals at the intersections with Clearwater Ave and Center Parkway. Includes completion of Center Parkway to the new intersection with Steptoe.	\$11,105	
	101a	Hildebrand Boulevard	Center Parkway to Southridge Boulevard	Construct a new 5-lane roadway including sidewalks, curbs, streetlights, and shy lanes. Traffic control improvements include traffic signals or roundabouts at the intersections with the new Center Parkway and Sherman Street roadways.	\$5,230	
	101b	Hildebrand Boulevard	Southridge Boulevard to US 395	Construct a new 5-lane roadway including sidewalks, curbs, streetlights, and shy lanes.	N/A	Built by developers
	102	Hildebrand Boulevard	10th Avenue to Center Parkway	Construct a new 5-lane roadway including sidewalks, curbs, streetlights, and shy lanes. Traffic control improvements include a traffic signal at the intersection with the new Kansas Street roadway.	\$5,275	
	103	Center Parkway	Hildebrand Boulevard to Ridgeline Drive	Construct a new 3-lane roadway including sidewalks, curbs, streetlights, and shy lanes.	\$810	
	104	Sherman Street	Hildebrand Boulevard to Ridgeline Drive	Construct a new 3-lane roadway including sidewalks, curbs, streetlights, and shy lanes.	\$1,070	
	105	Kansas Street	10th Avenue to Ridgeline Drive	Construct a new 3-lane roadway including sidewalks, curbs, streetlights, signals and shy lanes.	\$2,925	
	106	Ridgeline Drive	Clodfelter Road to US 395	Construct a new 3-lane roadway including sidewalks, curbs, streetlights, and shy lanes. Traffic control improvements include roundabouts at the intersections with Clodfelter Road, the new Kansas Street, the new Center Parkway, the new Sherman Street, and Southridge Boulevard roadways.	\$8,270	
	107	Center Parkway Extension	Gage Boulevard to the City limits to the north	Extend Center Parkway from Gage Boulevard to Taptéal Drive.	\$3,920	

## Exhibit 4-10 Long-term Street Improvement Project List (Continued)

Project Type	MAP ID	Project Name	Project Limits	Project Description	2007 Total Cost (\$1,000's)	Comments
Roadway Reconstruction/Widening	201	4th Avenue	Kellogg Street to Columbia Center Boulevard	Widen and reconstruct including curb, gutter, sidewalk, illumination, and shy lanes.	\$2,855	City funds and grants
	202	4th Avenue	Kellogg to Union Street	Widen and reconstruct including curb, gutter, sidewalk, illumination, and shy lanes.	\$2,855	Already funded with City funds and TIB grants
	203	Edison Street	Clearwater Avenue to Canal Drive	Widen to 5 lanes including center left-turn lane, curb, gutter, sidewalk, illumination, and shy lanes.	\$3,440	Addition of left turn lanes at the intersections at Metaline are in design and will be funded by a federal grant (secured)
	204	10th Avenue	Clearwater Avenue to Steptoe Street	Widen to 3 lanes and reconstruct including center left turn-lane, curb, gutter, sidewalks, illumination, and shy lanes.	\$2,555	Likely to be partially funded by Developers/Grants
	205	10th Avenue	Steptoe Street to Columbia Center Boulevard	Widen to 3 lanes including center left-turn lane, curb, gutter, sidewalks, illumination, and shy lanes. Traffic control includes stop control at the intersection with the Montana Street roadway.	\$2,035	Would include developer contributions
	206	Southridge Boulevard	Ridgeline Drive to Hildebrand Boulevard	Reconstruct including curb, gutter, sidewalks, and illumination.	\$1,295	
	207	Southridge Boulevard	Hildebrand Boulevard to 27th Avenue	Widen to 3 lanes and reconstruct including curb, gutter, sidewalk, illumination, and shy lanes.	\$2,000	Local funding includes developer contributions
	208	Olympia Street	27th Avenue to 45th Avenue	Reconstruct including curb, sidewalks, illumination, and shy lanes. Include turn pockets at major intersections.	\$3,200	City funds and TIB grant (secured)
	209	Kennewick Avenue	Union Street to Morain Street	Widen to 3 lanes and reconstruct including center left-turn lane, curb, gutter, sidewalk, and shy lanes.	\$1,975	Dependent on Grant Funding
	210	Steptoe Street	Clearwater Avenue to 10th Avenue	Widen to 5-lanes and reconstruct including curb, gutter, sidewalk, illumination, and shy lanes and signal.	\$2,125	Will be completed along with construction of the Steptoe Extension (Project #100).
	211	Clodfelter Road	10th Avenue to Leslie Road	Reconstruct and realign Clodfelter Road to intersect with 10th Avenue west of Steptoe Street including curb, gutter, sidewalks, illumination, and shy lanes. Traffic control includes partial-way stop at intersection with 10th Avenue.	\$1,335	
	212	Canal Drive	US 395 to Washington Street	Widen and reconstruct including curb, gutter, sidewalk, illumination, center left-turn lanes, and shy lanes. Add eastbound and westbound left-turn lanes at the intersection of Canal Drive and Fruitland Street.	\$6,455	

## Exhibit 4-10 Long-term Street Improvement Project List (Continued)

Project Type	MAP ID	Project Name	Project Limits	Project Description	2007 Total Cost (\$1,000's)	Comments
Roadway Reconstruction/Widening	213	Vancouver Street	36th Avenue to 45th Avenue	Widen and reconstruct including curb, gutter, sidewalk, illumination, left-turn lanes, and shy lanes.	\$2,055	
	215	27th Avenue	Washington Street to Dayton Street	Reconstruct to include curb and gutter, sidewalks, illumination, and shy lanes.	\$1,500	Dependent on Grant Funding
	216	Columbia Center Boulevard	Clearwater Avenue to Quinault Avenue	Add northbound and southbound lanes and make intersection improvements as necessary.	\$6,660	
	217	Cascade Street	27th Avenue to City Limits	Widen and reconstruct including center two-way left-turn lane, curb, gutter, sidewalk, illumination, and shy lanes.	\$3,505	
	218	Leslie Road	Clodfelter Road to the west	Reconstruct including curb, gutter, sidewalk, illumination, and shy lanes.	\$960	
Intersection Improvements	300	4th Avenue / Kellogg Street	Intersection	Construct a one-lane roundabout.	\$300	Local funding includes developer contributions
	301	45th Avenue / Olympia Street	Intersection	Construct a one-lane roundabout.	\$390	
	303	Clearwater Avenue / Edison Street	Intersection	Upgrade the traffic signal and widen the intersection including the addition of a westbound right-turn lane and a southbound left-turn lane.	\$850	Coordinate with Project #203
	304	Clearwater Avenue / Arthur Street	Intersection	Intersection Improvements	\$360	Needs additional funding from adjoining property owners or developers
	305	Clearwater Avenue / 10th Avenue	Intersection	Intersection Improvements	\$360	
	306	Clearwater Avenue / Leslie Road	Intersection	Install a traffic signal. Includes a railroad interconnect.	\$0	Already funded
	307	10th Avenue / Morain Street	Intersection	Intersection Improvements	\$360	
	308	Kennewick Avenue/ Yelm Street	Intersection	Upgrade traffic signal poles and equipment.	\$60	
	309	Grandridge Boulevard / Young Street	Intersection	Construct a one-lane roundabout.	\$365	

## Exhibit 4-10 Long-term Street Improvement Project List (Continued)

Project Type	MAP ID	Project Name	Project Limits	Project Description	2007 Total Cost (\$1,000's)	Comments
Intersection Improvements	310	Deschutes Avenue / Center Parkway	Intersection	Construct a one-lane roundabout.	\$365	
	311	Stephoe Street / 10th Avenue/ Hildebrand	Intersection	Install a traffic signal or roundabout	\$360	Local funding includes developer contributions.
	312	Edison Street / Metaline Avenue	Intersection	Widening and Intersection Improvements	\$1,300	Received safety grant for the project.
	313	27th Avenue / Washington Street	Intersection	Construct a one-lane roundabout.	\$300	
	314	10th Avenue / SR 397	Intersection	Intersection Improvements	\$360	Joint project with WSDOT
	315	Hildebrand Boulevard / Southridge Boulevard	Intersection	Signal and Intersection Improvements	\$450	
	316	US 395 / Ridgeline Drive	Intersection	Intersection improvements, access control, earthwork, acceleration/deceleration lanes.	\$4,850	Partially funded through development contributions
	317	Hood Avenue / Neel Street	Intersection	Construct a one-lane roundabout.	\$150	UNFUNDED IN ALL OPTIONS
	319	Edison Street / Canal Drive	Intersection	Add a westbound right-turn lane.	\$370	
	320	Edison Street Railroad Grade Separation	Intersection	Railway crossing grade separation.	\$17,000	UNFUNDED IN ALL OPTIONS
	321	Edison Street/ SR 240 EB Ramps	Intersection	Install a traffic signal.	\$360	Majority funded by WSDOT
	322	Edison Street/ SR 240 WB Ramps	Intersection	Install a traffic signal.	\$360	Majority funded by WSDOT
	323	Union Street/ Clearwater Avenue	Intersection	Intersection Improvements	\$345	
	324	US 395/ 10th Avenue	Intersection	Add a southbound left-turn lane.	\$1,600	
	325	Olsen Street/ 27th Avenue	Intersection	Install a traffic signal.	\$360	
	326	Rainier Street/ 10th Avenue	Intersection	Intersection Improvements	\$360	UNFUNDED IN ALL OPTIONS
327	Washington Street/ Columbia Drive	Intersection	Add an eastbound right-turn lane.	\$510		

 Unfunded projects in the 20-year transportation system plan

## Exhibit 4-10 Long-term Street Improvement Project List (Continued)

Project Type	MAP ID	Project Name	Project Limits	Project Description	2007 Total Cost (\$1,000's)	Comments
Intersection Improvements	328	Yelm Street/ US 395	Intersection	Add a westbound left-turn lane with receiving lane on Yelm Street.	\$1,200	Majority funded by WSDOT May require removal of some on-street parking
	329	US 395/ Clearwater Avenue	Intersection	Add additional eastbound and northbound left-turn lanes plus new eastbound and westbound right-turn lanes.	\$1,800	
	330	Columbia Drive & Gum St (SR-397)	Intersection	Add a northbound left-turn lane.	\$1,100	
	331	27th Avenue/ Southridge Boulevard	Intersection	Reconstruct the roundabout to a two lane roundabout. Add a lane to the entrance of the southbound and northbound approaches and widen the exit on the east leg to accommodate two lanes.	\$250	
	332	Columbia Drive/ Fruitland Street	Intersection	Add an eastbound right-turn lane	\$340	
	N/A	Downtown Railroad Grade Separation	Intersection	Railway crossing grade separation.	\$17,000	UNFUNDED IN ALL OPTIONS
	N/A	Citywide Traffic Signal System Upgrade/ Retiming	City-wide	New signal system software, communications equipment, and retiming.	\$600	
	N/A	Citywide Intersection & Corridor Safety Program	City-wide	City-wide signal modifications & retiming for Flashing Yellow Left-turns.	\$550	Upgrade signal systems
City of Richland Projects	600	Leslie Road	Meadow Hills Drive to Clearwater Avenue	Reconstruct and widen to 5-lanes with curb, gutter, sidewalks, and shy lanes.		
	601	Center Parkway	Tapteal Drive to city limits	Construct new roadway with center turn lane, curb, gutter, sidewalks, and shy lanes.		
	602	Gage Boulevard	Leslie Road to east city limits	Reconstruct and widen to 5-lanes with curb, gutter, sidewalks, and shy lanes.		Joint project with Kennewick (Project #200).
	604	Steptoe Street / Tapteal Drive	Intersection	New signalized intersection		
	606	Center Parkway / Tapteal Drive	Intersection	New signalized intersection		
	607	Leslie Road / Reata Road	Intersection	New signalized intersection		
	608	Center Boulevard	Steptoe Street to Leslie Road	Construct new roadway with center turn lane, curb, gutter, sidewalks, and shy lanes.		
	609	Bellerive Drive	Broadmoor Street to Center Boulevard	Construct new roadway with center turn lane, curb, gutter, sidewalks, and shy lanes.		

Unfunded projects in the 20-year transportation system plan

## Exhibit 4-10 Long-term Street Improvement Project List (Continued)

Project Type	MAP ID	Project Name	Project Limits	Project Description	2007 Total Cost (\$1,000's)	Comments
Benton County Projects	700	Olympia Street	City limits to Intertie	Reconstruct roadway with center turn lane, curb, gutter, sidewalks, and shy lanes.		
	702	Sagebrush Road	Badger Road to Badger Golf Course Road	Construct new roadway. Includes intersection improvements at I-82 EB Ramps		
WSDOT Projects	801	US 395 / SR 240 Interchange	Interchange	Reconstruct the interchange		
	802	Clearwater Avenue / I-82 Westbound Ramps	Intersection	Install signal or roundabout		Joint project with City of Kennewick
	N/A	Columbia River Bridge Traffic Operations	Columbia River Bridge	Install monitoring equipment, signs and communications on the Blue Bridge on US 395 across the Columbia River that connects Pasco and Kennewick		

*\*Total project costs by category do not match exactly with Exhibit 9-19 because some projects have been identified to primarily benefit Southridge development needs. Those projects are shown to total \$24.3 million and include all types of projects.*

## Capital Street Projects

The evaluation of existing and forecast traffic volumes as well as traffic operations, safety, functional classification, roadway physical characteristics, and connectivity issues has generated a recommended list of projects and programs to improve the overall safety and efficiency of the City's transportation system. **Exhibit 4-9** illustrates the location of each the proposed projects. A complete list of these projects is shown in **Exhibit 4-10**. The projects are organized into the following categories:

- New Roadways
- Roadway Widening/Reconstruction
- Intersections
- Regional and Other Agency Improvements
- Project Costs

### New Roadways

A large portion of growth in the City of Kennewick is expected to occur in the west and south sectors of the City. As growth occurs, new roadways will be needed to provide connectivity, support development, and facilitate the local economy. Key projects have been identified along the Steptoe Street corridor and in the Southridge Subarea that will be needed to support the anticipated growth.

#### *The Steptoe Street Corridor*

Steptoe Street (project 100) has been identified as a high priority project as growth along the corridor, both in Kennewick and in Richland, will increase the demand for improved circulation, access, and connectivity. The new SR 240 interchange and roundabout on the northern terminus of Steptoe Street also contributes to an increased need for a north-south connector between SR 240 and development in the southwest corner of Kennewick.

#### *Southridge Subarea*

Southridge is a largely undeveloped sector of the City and is anticipated to be a high growth area over the next twenty to thirty years. Most of the new roadways on the project list will be located in the Southridge subarea (projects 101 to 106). Traffic forecasts for the Southridge subarea were based on the City's travel demand model, but did not account for a full build-out scenario of the entire subarea. It is expected that full build-out of the subarea will occur beyond the 20-year life of the transportation plan. Although Hildebrand Boulevard (Projects 101a, 101b, and 102) is planned as a five lane roadway, with full build-out in mind, a three lane roadway was found to be sufficient using the available model, except in the commercial area near US 395. All other new roadways in the Southridge subarea were modeled with three lanes, which was shown to reasonably accommodate the expected levels of traffic in the future.



Improvements at almost every major intersection along US 395 will be needed in the future to accommodate expected growth.

### Roadway Widening/Reconstruction

Roadway widening and reconstruction projects were selected based on the need to maintain current infrastructure, relieve congestion, support anticipated growth, upgrade to urban standards set by the City of Kennewick, increase safety, and facilitate non-motorized forms of transportation. Key widening/reconstruction projects include the Edison Street widening project between SR 240 and Clearwater Avenue (project 203), and the Columbia Center widening project (project 216).

#### *Edison Street*

is an important corridor in the Kennewick transportation system because it connects the central geographic portion of the City with SR 240. Key safety improvements include a center turn lane and shy lanes, and illumination upgrades between Canal Drive and Clearwater Avenue (project 203).



Recent roundabout intersection improvements enhance motor vehicle and pedestrian access and safety.

*Columbia Center Boulevard*

is a key economic corridor as it supports a large share of the commercial and service developments in the City and the region. Expected growth along the corridor will require roadway widening, traffic signal upgrades, and turn lane additions at all of the intersections along the corridor between Quinault Avenue and Clearwater Avenue (project 216).

**Intersections**

Not all corridor improvements require roadway widening and reconstruction to reduce congestion and increase safety. Intersection improvements can reduce delay at cross-roads to relieve queuing and congestion and improve safety. Approximately 40 percent of all recommended intersection improvements focus on two key north-south corridors: US 395 and Edison Street.

*US 395*

will be impacted by growth because it is a major north-south arterial and truck route that connects I-82 to SR 240 and SR 397 and will serve growth in the expanding Southridge community. New traffic controls or interchanges will be needed to serve the Southridge subarea. Intersection improvements will be needed at almost every major existing intersection along the route in order to accommodate growth.

*Edison Street*

Growth in the City will increase congestion on the Edison Street corridor and at the major cross-streets that connect to Edison Street. Improvements along the Edison Street corridor include traffic control installation or upgrades at the on/off ramps to SR 240 (projects 321 and 322), Canal Drive (project 319), Metaline Avenue (project 312), and Clearwater Avenue (project 302). Key safety improvements include construction of a grade separated railroad crossing near Metaline Avenue (project 320).

The City has been implementing a City-wide intersection and corridor safety program wherein signals are modified and/or retimed for Flashing Yellow Left-turns to reduce the amount of confusion that drivers experience between the transitions from protected to permitted left-turns.



**Regional and Other Agency Improvements**

Many regional improvements have been planned that will also benefit the Kennewick area. Most of the regional improvements benefiting Kennewick will occur to the north and west a of the City including Leslie Road and improvements along the SR 240 and US 395 corridors.

*SR 240*

SR 240 is a major east-west regional connector and truck route. Future plans include widening between Columbia Center Boulevard and Edison Street.

*Leslie Road*

Leslie Road will be widened between Meadow Hills Drive and Clearwater Avenue from two lanes to three lanes. The Leslie Road corridor will be a key corridor as the Southridge area grows because it is one of the only arterials on the west side of the City.

*US 395 / SR 240 Interchange*

WSDOT will reconfigure this interchange south of the “Blue Bridge” starting in 2009. The improvements include adding a second through-lane for southbound US 395 to improve traffic flow and reduce the risk of collisions. Congestion and merge conflicts south of the bridge result in traffic accidents and potentially dangerous driving conditions. The revised interchange will allow smoother travel for motorists continuing south on US 395, and decrease conflicts in the interchange area.

**Project Costs**

Planning level cost estimates were prepared based on typical unit costs for other projects that were recently completed in the City. All costs are in 2007 dollars. The cost estimates account for projected costs of right-of-way, typical infrastructure consistent with the City street standards, construction labor, and engineering and design costs. Adjustments were made to cost estimates where environmental issues, railroad or canal crossings, and structural or bridge construction were identified. All costs contain a large contingency factor to account for unknown

design details to be evaluated when the projects are integrated into the City's 6-year Transportation Improvement Project (TIP) list.

## Transportation System Management

Transportation System Management (TSM) programs are designed to increase the usefulness and efficiency of existing facilities and systems through short range, low cost improvements. TSM programs involve all modes of transportation. Examples of TSM programs include transit programs, Intelligent Transportation Systems (ITS), traffic signal timing programs, and road diets. ITS and traffic signal timing programs are discussed in this section.

### Intelligent Transportation Systems (ITS)

ITS are used to gather and/or disseminate information regarding performance of the transportation system (usually in real-time) in an effort to increase capacity, safety, and efficiency for all system users. ITS data are frequently used to solve transportation problems and aid in transportation planning activities. Data gathering ITS include weigh-in-motion devices that collect and classify information regarding heavy vehicle travel while data disseminating systems include variable message signs that warn motorists of congested roadways and recommend alternative routes. ITS systems have also been used to warn motorists of hazardous conditions such as snow and ice.

Data gathering equipment and variable message signs were recently added to the Columbia River Bridge (Blue Bridge) on US 395 to alert motorists to roadway conditions, hazards, and crashes. Other such ITS measures may be useful along SR 240 and further south on US 395 to allow motorists and heavy vehicle operators to plan their routes through Kennewick in the event of congestion or crashes that may impede or delay their travel.

### Traffic Signal Timing Programs

Traffic signal systems must be retimed or upgraded periodically as growth occurs or travel patterns change to ensure optimal operations at intersections, improve safety, meet City standards, and refresh or replace software. The

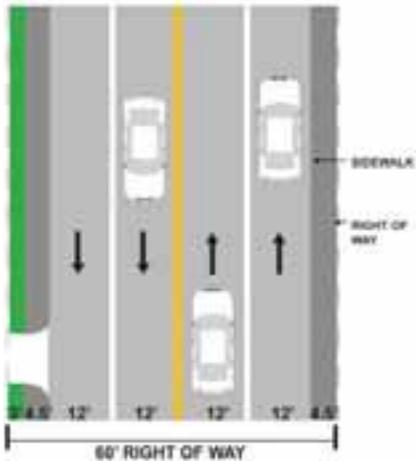
City of Kennewick has planned city-wide traffic signal system upgrades, communications upgrades, and retiming of intersections throughout the City over the next few years. The signal system upgrade and retiming plan will reduce delay, improve operations, and increase safety. Improvements resulting from the upgrade plan can directly impact local streets where through traffic has been a problem thereby reducing the maintenance costs of those roadways. Reduced delay will also save motorists time, reduce fuel consumption, and reduce pollution and harmful particulate matter. Improvements to the communication equipment will aid traffic operations and vehicle detection. The City of Kennewick should continue to review signals and signal timing plans and put in place a plan where by signals are evaluated on a regular basis.

The City also has been implementing a City-wide intersection and corridor safety program wherein signals are modified and/or retimed for Flashing Yellow Left-turns to reduce the amount of confusion that drivers experience between the transitions from protected to permitted left-turns. A total of 33 traffic signals throughout the City have been modified with the Flashing Yellow Left-turn arrows. Initial feedback from the public has indicated the program has been a success and has helped reduce the frequency and severity of crashes at signalized intersections.

### Road Diets

In order to provide greater multi-modal safety and connectivity along selective arterial street corridors, Kennewick may consider applying the road "diet" concept. Road diet is the common term for an arterial street conversion that shifts the conveyance function from one focused almost exclusively for automobile throughput, to a more balanced, multi-modal circulation and access route. The road diet conversion often includes replacement lane configuration, the addition of a center turn-lane and additional non-motorized facilities, and sometimes street trees or other amenities. A multi-lane arterial, particularly ones with multiple traffic signals, can be converted from four to three lanes and retain quality levels of traffic operation and flow.

### Exhibit 4-11 Four-Lane Arterial Cross-section



Several of Kennewick’s arterials are striped and fitted with four travel lanes but lack center turn-lanes and bicycle lanes, see example in **Exhibit 4-11**. Through a road diet conversion, some of Kennewick’s arterial street corridors could improve both non-motorized and auto traffic operations, possibly improve traffic safety, and hence improve Kennewick’s livability and quality of life. There are several factors the City should consider before undertaking a road diet conversion.

## Road Diet Considerations

### Traffic Volume

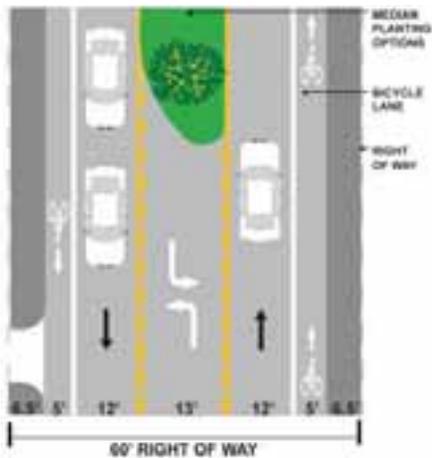
A corridor’s traffic volume is an essential consideration in the road diet conversion. Ideally, a four-lane roadway candidate has fewer than 18,000 trips per day. Some communities around the nation have converted roadways ranging between 19,000 and 25,000 trips per day, but this upper limit may not be effective for Kennewick’s arterial streets.

Based on current traffic volumes and the need for greater bicycle system connectivity (see Chapter 6), a number of corridors are identified in Kennewick as road diet candidates. **Exhibit 4-14** lists the possible road diet corridors. Further analysis may be necessary to determine the viability for these corridors.

### Non-motorized Mobility

Making Kennewick’s arterials safer for pedestrians and cyclists is another consideration in the road diet conversion process. Finding gaps in a four-lane roadway for pedestrians to safely cross is often difficult and can be dangerous. Drivers on four-lane arterials often have obstructed views of pedestrians when vehicles are located in adjacent travel lanes, and often vehicles in one lane may stop while vehicles in the adjacent lane may not stop because they have limited visibility of the pedestrian. With the reduction of a travel lane, pedestrian crossing safety is improved as the crossing distance is reduced and drivers are also better able to see pedestrians along a three-lane roadway when there are fewer travel lanes where vehicles could obstruct visibility.

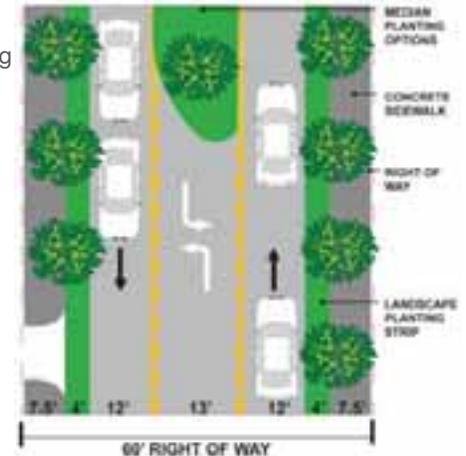
### Exhibit 4-12 Three-lane Arterial Cross-section



National studies and research indicate that the number of accidents involving pedestrians and bicyclists typically decline along corridors that convert from a four-lane to a three-lane design. The design of the roadway could incorporate many elements that would greatly enhance pedestrian and bicycle safety and mobility. This includes incorporating bike lanes, sidewalks, curbing, landscape buffers, refuge islands, pavement striping or texturing, and signage. Special attention should also be directed to crossing locations by including these elements to provide for more driver and pedestrian awareness.

For streets that are designated as bicycle routes, the process of reducing a roadway from four lanes to three lanes can easily include the addition of bicycle lanes, as shown in **Exhibit 4-12**. Bike lanes allow separation of slower moving bicycles and faster moving cars, which increases the mobility and safety for each transportation mode. These lanes also provide a buffer between traffic and pedestrians. Lane widths and configuration for road diet candidates will vary depending on available roadway width and traffic demand. An optional three-lane cross section, as shown in **Exhibit 4-13**, provides curb, gutter, sidewalk, and a landscape buffer allowing for an enhanced pedestrian environment. The curb and landscape buffer provide a

### Exhibit 4-13 Three-lane Arterial Cross-section Option



physical barrier between vehicles and pedestrians that can be improved with the width and landscaping used in the buffer. If bicycle lanes are also desired, these types of pedestrian enhancements will require more right of way and additional expense to relocate existing curb lines and install new streetscaping and sidewalks.

**Exhibit 4-14 Road Diet Corridors**

Street	Photo	Limits		Average Daily Traffic	
		From	To	Existing (2005)	Future (2025)
Fruitland Street		1st Avenue	Columbia Drive	8,500	10,000
Kennewick Avenue		Olympia Street	Dayton Street	10,000	11,800
Kennewick Avenue		Huntington Street	Morain Street	10,000	11,800
4th Avenue		Olympia Street	Garfield Street	10,500	12,000
1st Avenue		Garfield Street	SR 397	10,500	12,500

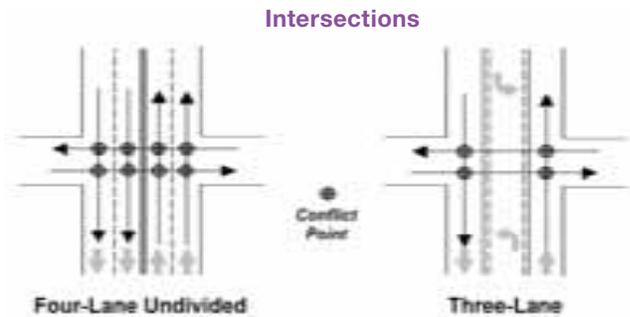
Street	Photo	Limits		Average Daily Traffic	
		From	To	Existing (2005)	Future (2025)
Vista Way	No Photo	Entire Length		8,200	10,400
10th Avenue		Union Street	US 395 <sup>1</sup>	12,600	14,300
Canal Drive		Underwood Street	Washington Street <sup>2</sup>	5,600	5,900
Washington Street		10th Avenue <sup>3</sup>	1st Avenue	12,200	14,900

<sup>1</sup> The termini of this segment may be Morain or Huntington.

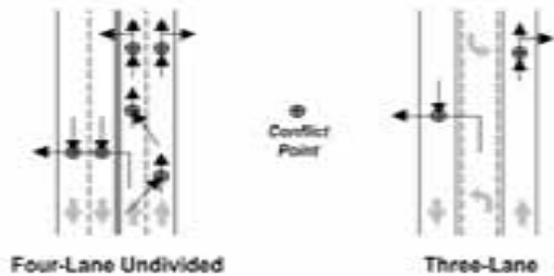
<sup>2</sup> On-street parking is an issue. Termini may need to be revised to Cascade Street.

<sup>3</sup> Termini may be revised to 6th Avenue.

## Exhibit 4-15 Street Conflict Points



**Mid-Block Turn-Movements**



### Traffic Safety Considerations

Converting four-lane arterials to three, can have the effect of improving safety and reducing traffic accidents. Vehicles cross four travel lanes at intersections and vehicles turning left to or from these streets (mid-block) have to cross two lanes of traffic. With a three-lane roadway, turn-related accidents are typically reduced as crossing vehicles and left turning vehicles would have fewer lanes to cross, which equates to fewer conflict points and improved safety. **Exhibit 4-15** depicts the conflict points for crossing traffic at intersections and mid-block turn-movements.

The addition of a two way center left turn lane also provides added safety benefits such as improved sight distance, improved emergency vehicle mobility, and provides refuge for left turning vehicles. **Exhibit 4-16** depicts how sight lines can be obstructed by other vehicles in a four-lane roadway, which is eliminated in a three-lane section.

### Transit Stop Consideration

Transit service in Kennewick is provided by Ben Franklin Transit, which provides 12 transit routes within the City of Kennewick.<sup>1</sup> Transit stops are generally located within 1,000 feet of each other.

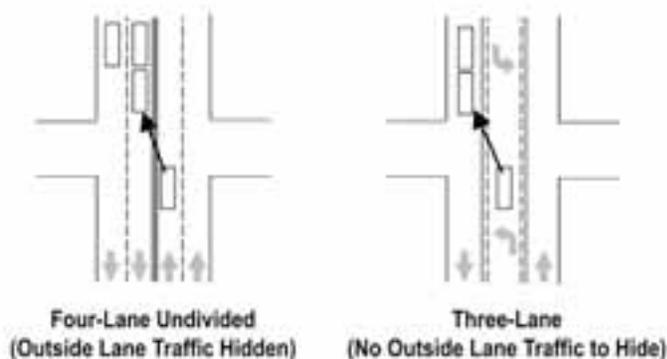
With the four-lane configuration, transit stops currently occur in the outside travel lane while the inside lanes remain open for vehicles to pass through. The City and Ben Franklin Transit should coordinate to determine the best way to operate transit stops with a three-lane configuration, should the City elect to convert some of its 4-lane arterials. Transit stops could either occur in the travel lane (overlapping the bicycle and travel lanes) or with a bus pull out. If the stops continued to occur in the travel lane, bulb-outs and center island pedestrian treatments may be desirable to enhance pedestrian and transit rider safety. Other options would include a pull out to prevent transit stops from impeding the flow of traffic.

Transit users are also pedestrians or bicyclists and they need to be able to travel safely to and from transit stops. All transit riders who take a round trip are going to have to cross the roadway either at the beginning or end of their trip. As discussed previously, these crossings are much more difficult across four-lane roadways. This may discourage some transit ridership. Three-lane roadways help improve the safety and mobility of pedestrians, allowing transit to be a more viable option.

### Agency Coordination

It is important for the City and other agencies such as the Police Departments, Fire Department, and Ben Franklin Transit to have input into the design of the roadway. Regarding public transportation, the City will need to coordinate with Ben Franklin Transit on issues of bus stop location (far-side vs. near-side stops at major intersections), pedestrian crossings at bus stops, and bus stop design (including ADA design requirements and other amenities such as shelters and benches).

## Exhibit 4-16 Sight Lines



### Testing and Implementation - Phased Approach

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All of the candidate corridors are projected with future daily traffic volumes below 18,000 and are initially suitable for road diet reconfiguration. A good strategy for project development employs testing 3-lane reconfiguration with bicycle or shy lanes along those streets that are generally lower volume which help close significant gaps in the bicycle system.

### Endnotes

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1. *For more discussion on transit operations in Kennewick, see Chapter 7.*



Chapter 5

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# Pedestrian System





## Policy Framework

In developing the goal and objectives for the Pedestrian System, an emphasis was placed on the importance of providing connecting facilities. This can only be accomplished by building sidewalks where they are not currently in place, especially along major streets where pedestrian activity exists or likely to occur and where transit operates. To help provide this comprehensive network of well-maintained pedestrian facilities, the Pedestrian System element of the Kennewick TSP contains a goal, objectives, and various supporting policies. This policy framework reflects the intent and requirement of recent state Growth Management Act policy (see **Appendix C**).

In order to achieve the pedestrian goal, two objectives have been outlined that deal with the role of expanding and creating pedestrian connecting facilities:

- Create a comprehensive system of pedestrian facilities, and
- Encourage programs that support pedestrian systems and promote pedestrian activity

Each objective is to be met through the implementation of policies that pursue particular strategies, develop specified programs, or engage in defined courses of action to ensure the achievement of the goal and objectives established in the TSP.

## Goal, Objectives, and Policies

The City of Kennewick has the following goal, objectives, and policies for the planning, development, and operation of its pedestrian system:

**GOAL:** *To provide a comprehensive system of connecting sidewalks and walkways that will encourage and increase safe pedestrian travel.*

### Objective No. 1

*The City of Kennewick shall create a comprehensive system of pedestrian facilities.*

### **Policy 1.1** *Inventory Existing System and Identify Future Needs*

The City shall inventory and map existing pedestrian facilities. Facility inventories and selected inventory updates should be performed every five years to determine the success or failure of meeting the Plan's pedestrian goal, objectives, and policies. [The City has already partially met this objective having completed the Self-Evaluation as part of the TSP for arterial and collector streets]

### **Policy 1.2** *Formalize New Sidewalk Construction Program*

To complete the pedestrian facility network, the City should formalize a New Sidewalk Construction Program that reflects the City's funding resources. This program would give priority to the construction of missing sidewalks in already developed areas of the City that would provide improved access to schools, parks, shopping, and transit services.

### **Policy 1.3** *Focus Attention on Inter-modal Connections*

Sidewalks and walkways will complement access to transit stations/stops, train stations, and multiuse paths. Activity centers and business districts should focus attention on and encourage pedestrian travel within their proximity.

### **Policy 1.4** *Ensuring Future Sidewalk Connections*

All future development must include sidewalk and walkway construction as required by the Kennewick City Code and adopted City of Kennewick Design Standards. All road construction or renovation projects shall include sidewalks. The City will support, as resources are available, projects that address identified barriers to pedestrian travel or safety.

### **Policy 1.5** *Complete Connections with Crosswalks*

All signalized intersections should have marked crosswalks. School crosswalks will be marked as approved by the traffic engineer and in accordance with the school walk route plan. Marked crosswalks, along with safety enhancements (medians



Safe walk to school routes are a high priority for sidewalk improvements

and curb extensions), should be provided, based on State and Federal guidelines, and as resources are available at unsignalized intersections and uncontrolled traffic locations in order to provide greater mobility in areas frequently traveled by persons with limited pedestrian capabilities.

**Policy 1.6 Connecting Trail Network**

The City will encourage the development of a connecting, shared-use path (trail) network, expanding facilities along canal rights-of-way.

**Policy 1.6 Compliance with ADA Standards**

The City shall comply with the requirements set forth in the Americans with Disabilities Act regarding the location and design of sidewalks.

**Objective No. 2**

*The City of Kennewick will encourage programs that support pedestrian systems and promote pedestrian activity.*

**Policy 2.1 Maintaining and Assuring the Quality of Facilities**

The City should establish standards for the maintenance and safety of pedestrian facilities. These standards should include the removal of hazards and obstacles to pedestrian travel, as well as maintenance of benches and landscaping.

**Policy 2.2 Promotion of Walking for Health and Community Livability**

Consistent with the GMA, the City will encourage efforts that inform and promote the health, economic, and environmental benefits of walking for the individual and the community.

Walking for travel and recreation should be encouraged to achieve a more healthful environment that reduces pollution and noise to foster a more livable community.

**Policy 2.3 Education of Pedestrian Safety Needs**

The City shall encourage schools, safety organizations, and law enforcement agencies to provide information and instruction on pedestrian safety issues that focus on prevention of the most important accident problems. The

programs will educate all roadway users of their privileges and responsibilities when driving, bicycling, and walking.

**Policy 2.4 Completion of Street Lighting Facilities**

The City will work toward the completion of the street lighting system, designed to City illumination standards, on all Arterial and Major Collector streets within the urban area. Through the use of neighborhood street lighting districts, property owners should be encouraged to provide street lighting, designed to City illumination standards, on all public local streets within the urban area.

**Policy 2.5 Safe Access to Schools**

The City will work with the Kennewick School District and neighborhood associations to maintain and improve its programs to evaluate the existing pedestrian access to local schools, estimate the current and potential use of walking as a travel mode, evaluate safety needs, and propose changes to increase the percentage of children and young adults safely using this mode.

**Existing Conditions**

The Kennewick pedestrian system consists of sidewalks, crosswalks, curb ramps, and shared-use paths throughout the City. The City's roadways act as the primary facilities to accommodate pedestrians. Many of these roadways have sidewalks to accommodate pedestrians.

**Sidewalks**

Sidewalks exist on about 82 percent (77 miles, both sides of roadway) of the principal and minor arterials within the City. However, as illustrated in **Exhibit 5-2**, there are nearly 20 miles of missing sidewalks along these same corridors. **Exhibit 5-1** shows that a majority of the existing arterial sidewalks are in average condition or better. Other results are as follows:

- Nearly 40 miles of sidewalk are in "very good" condition.
- The majority of sidewalks have no fixed objects obstructing pathways.
- Nearly all sidewalks are 4 feet wide or more.
- few sidewalks have "extreme" or "significant" heaving and cracking.

**Exhibit 5-1 Arterial Sidewalk Condition**

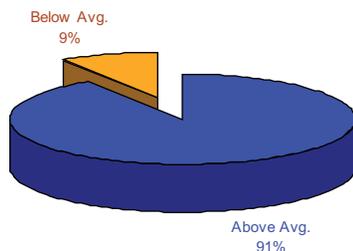
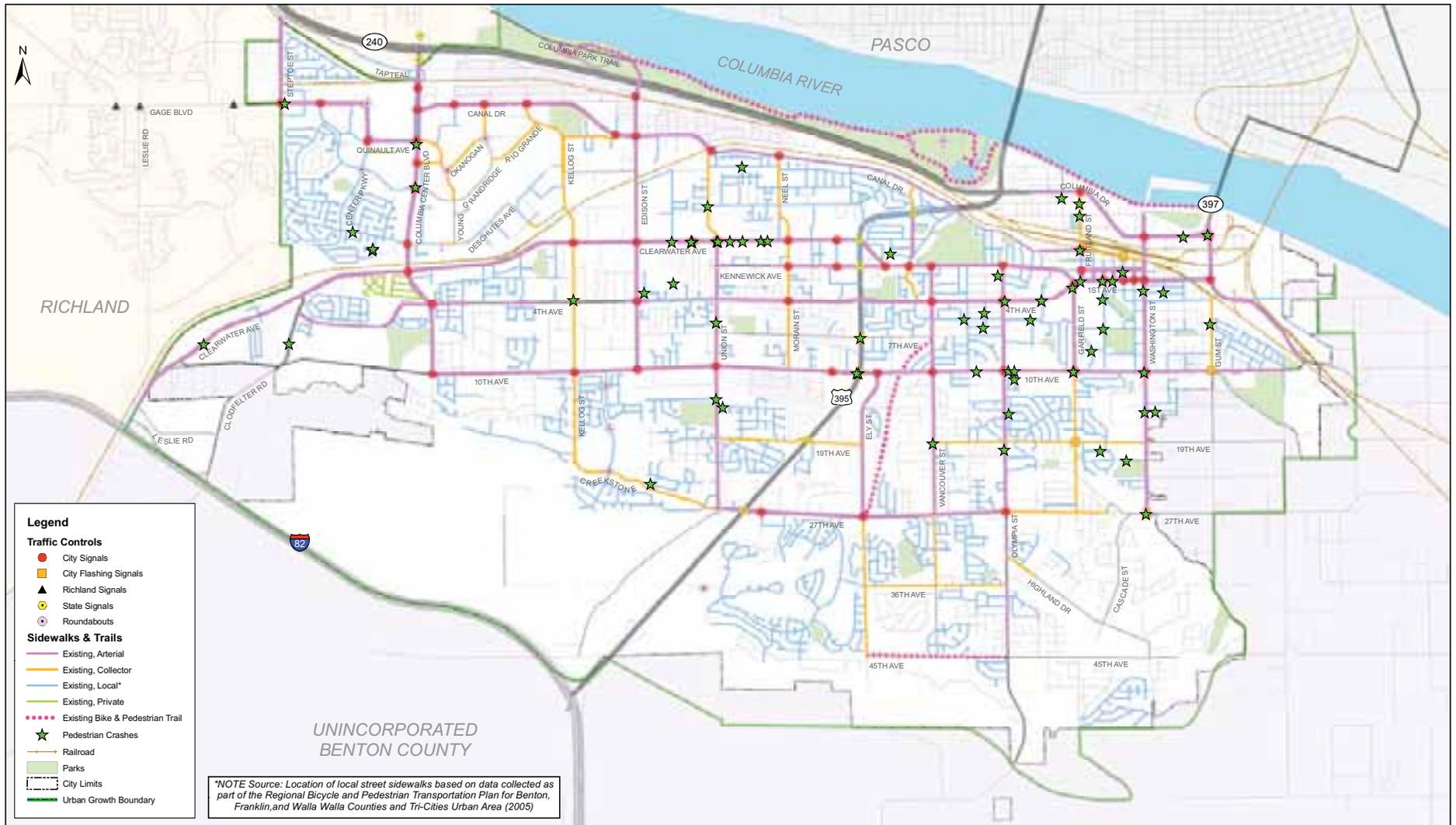


Exhibit 5-2 Existing Pedestrian System



**Exhibit 5-2** shows the existing sidewalk, trail, and shared-use path locations along arterial roadways. Included on the figure are locations of sidewalks on the collector and local street systems. These locations were not inventoried as part of this study and were developed by the Benton-Franklin Council of Governments while preparing the Regional Non-Motorized Transportation Plan. The collector and local street locations are approximations, and new sidewalks have likely been built on several streets since the data was collected.

Non-arterial sidewalks generally exist along collector and local streets where new development has occurred, and where retail development is close by. An example of this is near Columbia Center Mall in the northwest portion of Kennewick. In addition, streets located near public facilities, such as schools or transit centers, often have sidewalks as they are utilized heavily by pedestrians.

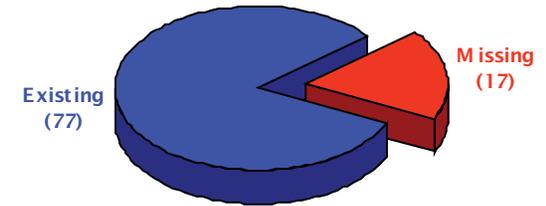
### Trails/Shared-Use Paths

Trails and shared-use paths are facilities which can be used not only by pedestrians, but also by other non-motorized vehicles, such as bicycles. There are several of these types of trails in the City of Kennewick, though the largest shared-use path is the Sacajawea Heritage Trail. This non-motorized route extends throughout the Tri-Cities area, including a section bordering the Columbia River in the northern section of Kennewick. Another major trail in Kennewick is the Audubon Nature Trail, which runs through Columbia Park, also located along the Columbia River.

The Sacajawea Heritage trail extends throughout the Tri-Cities area, including a section bordering the Columbia River in the northern section of Kennewick.



### Exhibit 5-3 Kennewick Arterial Sidewalks

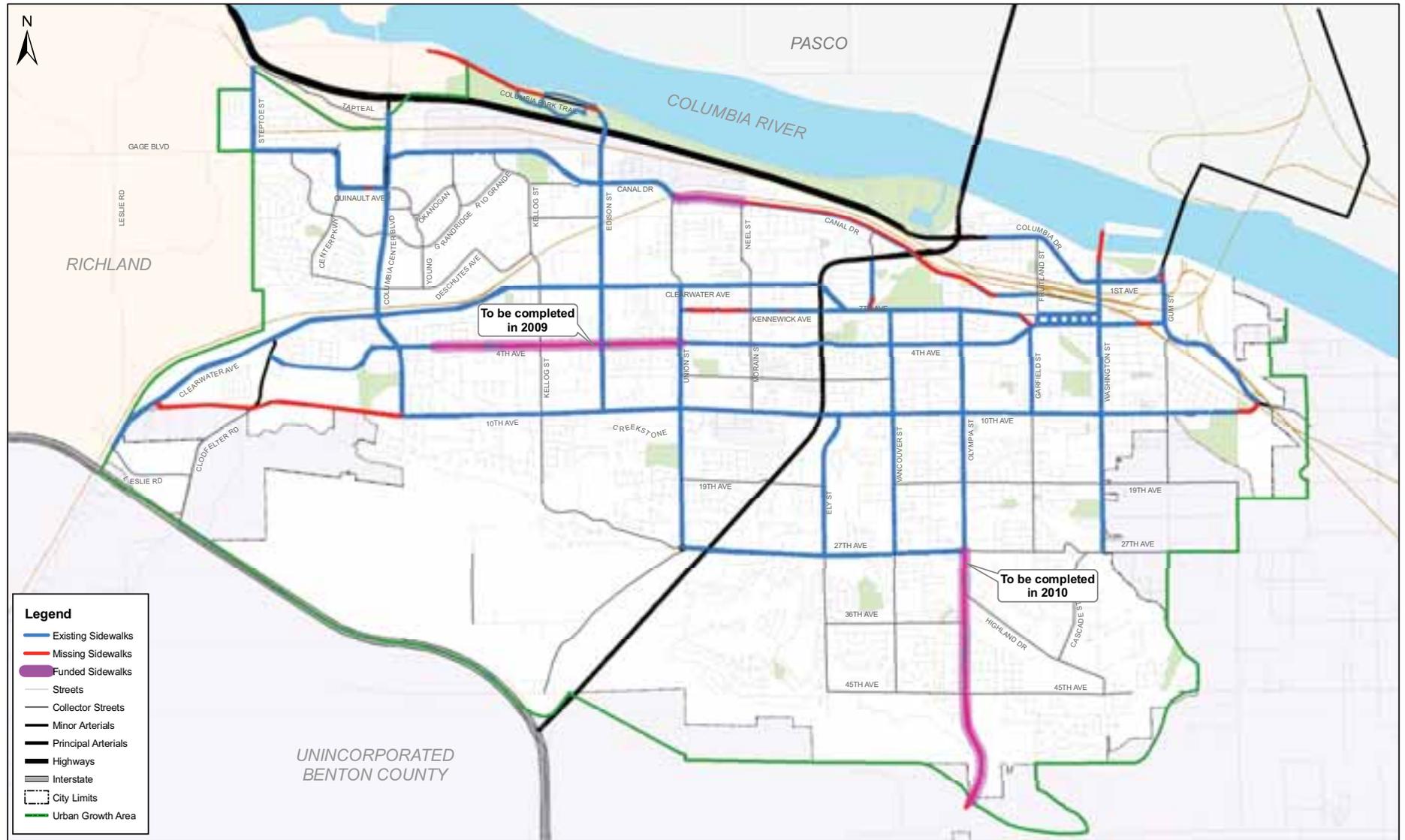


### Missing Sidewalks

In general, and over the past 10-20 years, the City of Kennewick has been ensuring that sidewalks on arterial streets are constructed on both sides of new streets. As a result, newer subdivisions have few missing sidewalks. A greater number of streets with missing sidewalks are located within older neighborhoods.

See **Exhibit 5-3** for the share of existing vs. missing sidewalks, and see **Exhibit 5-4** for the location of existing and missing sidewalks throughout the City of Kennewick.

Exhibit 5-4 Existing and Missing Sidewalks



## Curb Ramps

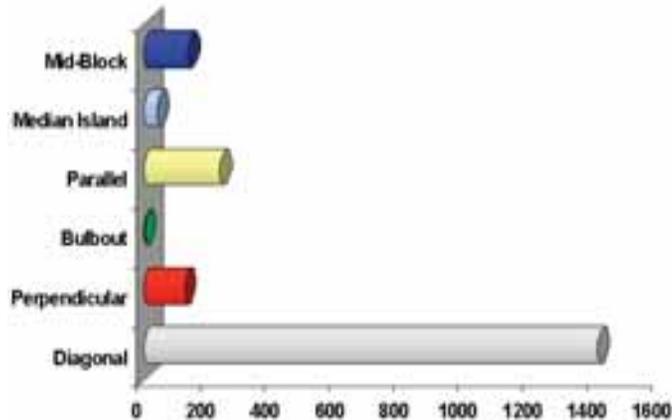
Curb ramp data along principal and minor arterials was also gathered as part of the inventory. **Exhibit 5-5** shows the locations that include curb ramps. Over 90 percent of the City's arterial crosswalks have curb ramps. Some specific locations that noticeably lacked curb ramps were 4th Avenue between Kellogg Street and Union Street and Olympia Street between 27th Avenue and 47th Avenue, which also lacks sidewalks in some areas (note: the City has obtained a TIB grant for the improvement of Olympia Street from 27th Avenue to SR 397).

The majority of curb ramps constructed in the City of Kennewick study area are diagonal by design, with a single ramp oriented to the center of the street intersection as illustrated in **Exhibit 5-6**. As shown in **Exhibit 5-5**, perpendicular curb ramps are more often found in downtown Kennewick along the grid street network where sidewalks were

constructed with sidewalk buffer strips. In recent growth areas, most new curb ramps have been constructed to standards with diagonal ramp designs.

The objectives that the City has laid out require that the existing deficiencies in the pedestrian system be addressed. Projects that help implement the policies described above are a significant step toward carrying out the City's stated objectives.

**Exhibit 5-5 Curb Ramp Type**



## Safety Conditions

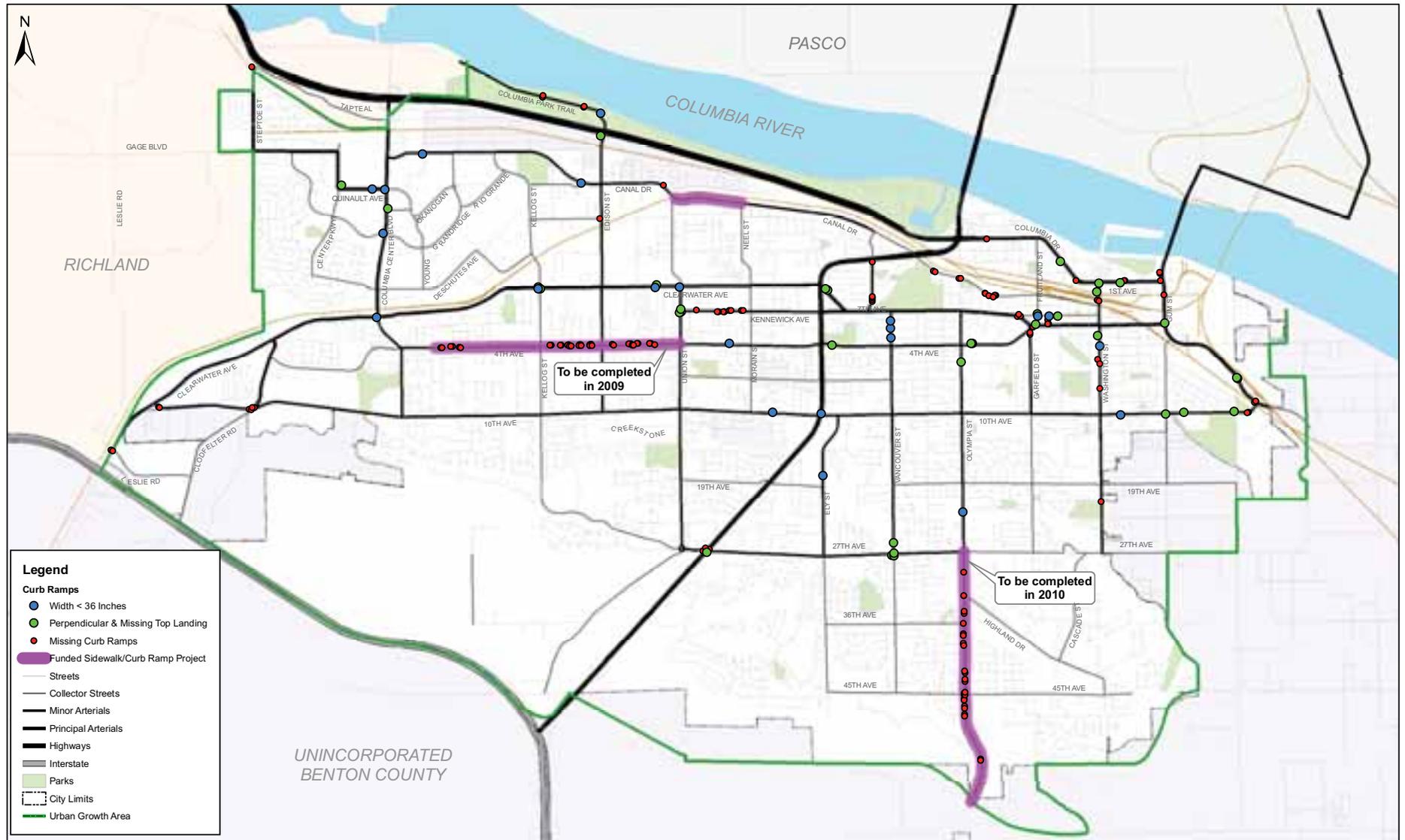
Pedestrian conflicts with other transportation modes, particularly automobiles, are an important concern within the pedestrian system. This concern exists in Kennewick just as it does in other cities. Crash data within the City of Kennewick between 2001 and 2004 indicates at least two corridors of concern for pedestrian safety. There were eight automobile collisions involving pedestrians along 10th Avenue in these four years, and there were 11 automobile collisions involving pedestrians along Clearwater Avenue. The 10th Avenue collisions were primarily between US 395 and Washington Street. The Clearwater Avenue collisions were between Edison Street and Morain Street. None of the collisions along either corridor had any fatalities, although the vast majority of them included injuries. Out of the 19 collisions, there were three that included property damage only.

The remainder of the pedestrian-related collisions in Kennewick during this time period was along corridors with five or fewer collisions each. The total number of pedestrian-related collisions during this time period, including those along 10th Avenue and Clearwater Avenue, was 72.

In order to enhance pedestrian safety, transportation modes should be separated as much as possible. For non-motorized users of the transportation network, especially pedestrians, facilities that enforce modal separation are keys to safety. The pedestrian system inventory's focus on arterials enables the City to see where the addition of new pedestrian facilities or the improvement of existing pedestrian facilities could help improve pedestrian safety. The pedestrian system inventory also laid the groundwork for the project recommendations discussed in the next section.



Exhibit 5-6 Curb Ramp Locations





Over 90 percent of the City's arterial crosswalks have curb ramps.

## Pedestrian Projects

An evaluation of existing pedestrian conditions as well as traffic operations, safety, and connectivity issues has generated a recommended list of projects to improve the overall safety and efficiency of the City's pedestrian system. The data collection of the City's pedestrian transportation system was instrumental in this evaluation. The City's sidewalk and curb ramp data was collected for arterial streets only. These arterial sidewalk construction projects total \$3,030,000. These projects are intended to make better connections within Kennewick's pedestrian system, especially for those who are physically handicapped, transit users, and other residents.

The pedestrian system projects consist of three different project types. First, as part of the street system plan, each corridor project includes reconstructed sidewalks. There are about 15 miles of roadway with sidewalks in the roadway reconstruction program. Also, new arterials and collectors in the City's southwest portion will be routes with completely new sidewalks; there are approximately 18 miles of these

projects in the new roadway construction program. There are also segments of existing arterial streets without sidewalks; these gaps should be filled as part of the arterial sidewalk construction program. These sidewalk segments total 1.6 miles.

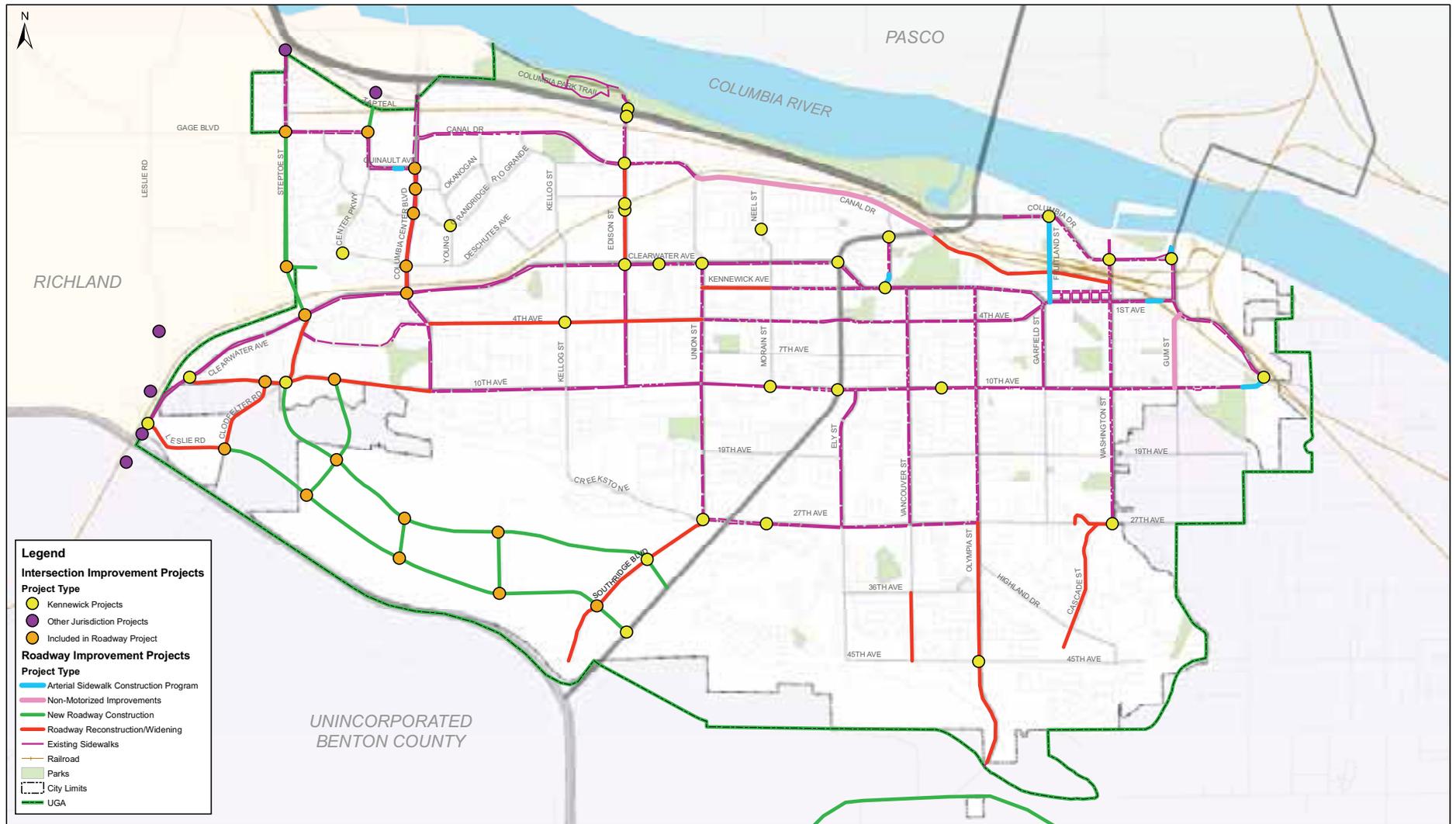
In addition, Kennewick currently has shared use paths that connect non-motorized transportation facilities. Additional shared use paths are planned, and will be coordinated by the Municipal Services Department. This coordination will include how to prioritize the projects, and how to fund improvements. The City's overall motivation for constructing shared use paths is to provide connections between residential subdivisions and other activity centers such as schools. These paths also serve as important recreation facilities within the growing Kennewick community. There are about 23 miles of shared use path projects within the city limits.

See **Exhibit 5-7** for a project list of the arterial sidewalk construction program and project descriptions. **Exhibit 5-8** shows the pedestrian system project locations.

### Exhibit 5-7 Pedestrian System Project List

Map ID	Project Name	Project Limits	Project Description
400	10th Avenue	Oak Street to SR 397	Construct missing sidewalks, including rail crossing
401	1st Avenue	Beech Street to Elm Street	Construct missing sidewalks, including rail crossing
402	SR 397	Columbia Drive to Columbia Drive Off-ramp	Construct missing sidewalks, rail crossing, Sacajawea pathway connection & curb ramps
404	Quinault Avenue	Silver Cloud Inn entrance to Red Lion entrance	Construct missing sidewalks & curb ramps
407	Yelm Street	Bruneau Avenue to Kennewick Avenue	Construct missing sidewalks & curb ramps
408	Canal Drive	Volland Street to US 395	Construct sidewalks along the north side with landscaping
409	Gum Street	10th Avenue to SR 397	Construct missing sidewalks & curb ramps

Exhibit 5-8 Pedestrian System Project Locations



## Pedestrian Implementation Strategies

### Sidewalk Construction

In implementing the TSP pedestrian element, several methods of providing sidewalks or shared-use pathways are currently available to the City:

- Private Development of Properties and Subdivisions. All new streets are required to have sidewalks. Most developing properties are required to construct sidewalks on abutting street frontages as part of the building permit process. The majority of new sidewalks are constructed in this manner.
- City-funded Street Improvement Projects. The City will typically construct sidewalks as part of a street improvement project that brings a street up to urban standards.
- City- and grant-funded shared-use path improvements including trail connections between the various parks and along canal rights-of-way.

- Assessed Projects. An assessed project involves the direct financial participation of abutting or nearby property owners to fund the construction of public improvements. This is implemented through the creation of an assessment district called a Local Improvement District. Individual properties can also be assessed for the improvements required along their own frontage.
- Inclusion in current Transportation Improvement Program. The TIP should be updated with transportation system projects (sidewalk, multi-use path, bicycle lane and shared travel lane improvements) as prioritized in the TSP. Within the TIP Kennewick should define a new section titled “Pedestrian Improvements and ADA Compliance Sidewalk Repair and Rehabilitation.”
- State Coordination. Coordination with WSDOT and BFCOG is essential to assure that adequate pedestrian facilities are included in all WSDOT improvements to SR 240 and US 395.

All five of these methods will be used by the City in differing situations to complete construction of the sidewalk system.



Connecting facilities by completing missing sidewalk segments along arterials is a major focus of the TSP.

Chapter 6

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# Bicycle System





## Policy Framework

In developing the Bicycle System Goal for the City, an emphasis was placed on the importance of providing a completed system of direct on-street bicycle facilities and paths, and on increasing the percentage of trips made by bicycle.

Three objectives have been developed to help the City of Kennewick achieve its bicycle system goal:

- Creating a comprehensive system of bicycle facilities;
- Encourage programs that support bicycle systems and promote cycling activity; and,
- Encourage programs that enhance bicycle safety.

Each objective is to be met through the implementation of policies that pursue particular strategies, develop specified programs, or engage in defined courses of action to ensure the achievement of the goal and objectives established in the TSP. The policy framework for Kennewick's bicycle system was developed consistent with federal policy guidelines and the Washington State Growth Management Act (**Appendix C**).

To increase the role of the bicycle as a viable mode of transportation a system of connected and well-maintained facilities should be provided.

## Goal, Objectives, and Policies

The City of Kennewick has the following goal, objectives, and policies for the planning, development, and operation of its bicycle system:

**GOAL:** *To provide a comprehensive system of connecting and direct on-street bicycle facilities and shared-use paths that will encourage increased ridership and safe bicycle travel.*

### Objective No. 1

*The City of Kennewick will create a comprehensive system of bicycle facilities.*

#### **Policy 1.1** *Provide Bicycle Facilities on Arterial and Collector Streets*

Bicycle lanes should be provided on all newly constructed Arterial and Collector streets. Arterial and Collector streets

undergoing overlays or reconstruction should either be re-striped with bicycle lanes or shy lanes as designated on the Bicycle Route and Facility System Map (see Exhibit 6-5). Every effort will be made to retrofit existing Arterials and Collectors with bicycle lanes or shy lanes, as designated on the Map.

#### **Policy 1.2** *Mitigation of On-street Parking Loss From Bicycle Projects*

Where new bicycle facilities require the removal of on-street parking spaces on existing roadways, parking facilities should be provided that mitigate, at a minimum, the existing on-street parking demand lost to the bike project. This policy does not apply to street widening or major reconstruction projects.

#### **Policy 1.3** *Connecting Trail Network*

The City will encourage the development of a connecting, multiuse trail network, using the Sacajawea Heritage Trail, the Audubon Nature Trail, and the Zintel Canyon Trail, and other corridors such as rivers, creeks, utility easements, and abandoned rail lines. This network can be established using programs such as rail-banking, which complements the on-street bicycle system.

#### **Policy 1.4** *Eliminate Barriers to Bicycle Travel*

The City will pursue a comprehensive system of bicycle facilities through designing and constructing projects, as resources are available, and implementing standards and regulations designed to eliminate barriers to bicycle travel. As a result of this policy, new developments or major transportation projects will neither create new, nor maintain existing, barriers to bicycle travel. Through the implementation of development Codes and standards, the City will require the creation of pathways and connections for bicyclists to schools, neighborhood shopping, and other activity centers. The City will adopt, include, and use bicycle supportive design and signage standards as part of roadway design standards, zoning and subdivision regulations, parking code requirements, railroad crossing standards, and other



Three objectives have been developed to help the City of Kennewick achieve its bicycle system goal:

- Creating a comprehensive system of bicycle facilities;
- Encourage programs that support bicycle systems and promote cycling activity; and,
- Encourage programs that enhance bicycle safety.

appropriate documents. As resources are available, the City will support projects designed to eliminate identified barriers relating to bicycle travel, either as stand-alone projects or as part of a major capital improvement project.

**Policy 1.5 Bicycle Routes and Signage**

As resources are available, the City will, in consultation with local bicyclists, review existing and proposed bicycle lanes and other streets, identify preferred routes, and make improvements as necessary to make these routes function better for bicyclists. These routes shall be identified by signage on the routes and shown on updates of the bicycle route map.

**Objective No. 2**

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*The City of Kennewick will encourage programs that support bicycle systems and promote cycling activity.*

**Policy 2.1 Complete the Major Bicycle System**

Recognizing that a completed system of major bicycle facilities is one of the most important factors in encouraging bicycle travel, the City will work toward annually adding to the bicycle system, as designated on the Bicycle Route and Facility System Map, with priority given to projects that fill critical missing links in the bicycle system or address an identified safety hazard.

**Policy 2.2 Establish Minimum Standards for Bicycle Facility Maintenance**

The City should develop minimum standards that will keep bicycle facilities clean of debris, properly striped, and clearly marked and signed.

**Policy 2.3 Develop a Maintenance Reporting Program**

To assist the City in achieving a high standard of maintenance on existing bicycle facilities, a program should be developed that allows the public to identify repair, sweeping, and other maintenance needs.

**Policy 2.4 Require Relevant Bicycle Accommodations During All Transportation Construction Projects**

The City will, where practicable, require each urban street construction project within the City to include consideration of bicyclists in the traffic control plan, including: placement of signs, routing, and lane width. High standards for resurfacing and sweeping should be required of all construction projects in the roadway right-of-way.

**Policy 2.5 City Code Requirements for Bicycle Parking**

The Kennewick City Code should contain bicycle parking supply requirements and standards that require new developments to provide a minimum amount of bicycle parking, based on the needs of the specific zone or land use type.

**Policy 2.6 Develop a Bicycle Parking Program for Businesses**

To assist businesses desiring to install bicycle parking, standards and placement criteria should be developed for acceptable bicycle parking facilities.

**Policy 2.7 Bicycle Parking at Transit and Inter-modal Facilities**

The City will encourage the installation of public bicycle parking facilities at park and ride facilities, transit stations, bus terminals, and other inter-modal facilities, and continuation of bicycle racks on all public transit vehicles.

**Policy 2.8 Promote Bicycle Use**

The City will encourage bicycling by sponsoring or participating in activities that promote bicycle transportation and recreation.

**Objective No. 3**

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*The City will promote bicycle safety.*

**Policy 3.1 Target and Eliminate Key Behaviors that Lead to Bicycle Accidents**

The City will encourage schools, safety organizations, and law enforcement agencies to provide information and instruction on bicycle safety issues that focus on the most important accident problems.

### **Policy 3.2** *Bicycle Safety Awareness Programs*

The City should develop training and awareness programs that encourage the public to ride safely and use bicycle safety equipment when bicycling. These programs should encourage all roadway users to courteously share the road and be aware of their privileges and responsibilities when driving, bicycling, and walking.

### **Policy 3.3** *Safe Access to Schools*

The City should work with the Kennewick School District and neighborhood associations to maintain and improve its programs to evaluate the existing bicycle access to local schools and supporting infrastructure at schools (bicycle racks, lockers, etc.), estimate the current and potential use of bicycling as a travel mode, evaluate safety needs, and propose changes to increase the percentage of children and young adults safely using this mode.

## Existing Conditions

### Introduction

Two fundamental building blocks are needed in understanding the study of Kennewick's bicycle system: (1) a baseline definition of the various terms and language used in describing bicycle facilities, and (2) understanding the various types of bicycle system users.

### Revising the Bicycle Planning Language

The City of Kennewick can begin more proactive planning for bicycle facilities by first expanding upon and clarifying the definitions of the various bicycle facilities, especially for the on-street bicycle system. Historical plan documentation in Kennewick has concluded in text and mapping a "Bikeway" or "Bikeway Route" network, some of which may be implied to mean on-street bicycle lanes. What are bikeway routes? Are they separate lanes for cyclists or a series of signs and painted symbols that indicate for both motorists and cyclists the need to share the outside travel lane? There is need for further clarity in these definitions, otherwise planners, engineers, policy officials and the general public might be unclear what the TSP full intentions are. **Exhibit 6-1** illustrates the basic

forms of bikeway facilities as defined by AASHTO.<sup>1</sup> Pavement markings and signing guidance is provided by the Manual of Uniform Traffic Control Devices (MUTCD)<sup>2</sup>. Consistent with the MUTCD, the City of Kennewick should adhere to the following definition of terms concerning bicycle facilities:

#### *Bicycle Facilities*

This is a general term denoting improvements and provisions that accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically defined for bicycle use.

#### *Bikeway*

Bikeway is a generic term for any road, street, path that in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive bicycle use or are to be shared with other travel modes.

#### *Bicycle Lane*

A bicycle lane is a portion of a roadway that has been designated by signs and pavement markings for preferential or exclusive use by bicyclists. Bicycle lanes are facilities that are placed on both sides of a street, and they carry bicyclists in the same direction as adjacent vehicle traffic. In addition to lane striping, pavement markings and signage are used to identify lanes.

On rural cross-sections that do not have curb and gutter shoulders are paved at least four feet and are separated from travel lanes with a lane stripe.

#### *Shy Lane*

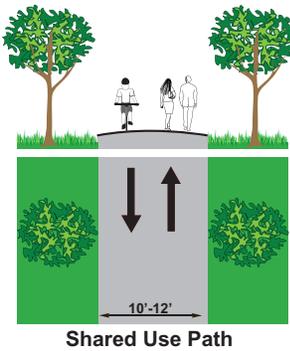
Similar to a bicycle lanes, shy lanes have lane striping that is typically at a distance of 4-6 feet from the face of the curb. The area is usable by cyclists but is not designated for their exclusive use and thus generally do not have any associated pavement markings or signage. In addition shy lanes may be utilized by vehicles briefly while exiting driveways or minor streets to improve sight distance, by the City to store snow after a winter storm, and as a buffer area adjacent



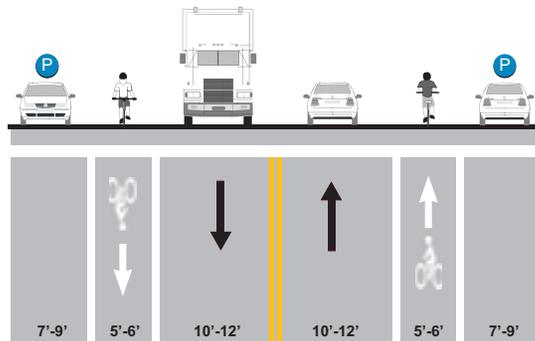
Bicycle lanes, or shy lanes, are located throughout the City, mainly on arterials such as Kellogg Street, Union Street, Vancouver Street, 4th Avenue, 27th Avenue, and Canal Drive.



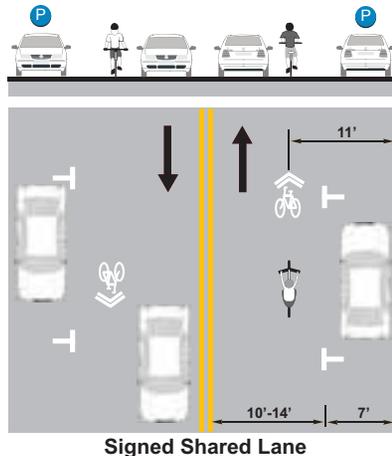
### Exhibit 6-1 Bikeway Facility Definitions



Shared Use Path



Bike Lane (Adjacent to Parking)



Signed Shared Lane

to sidewalks. These lanes may have intermittent obstacles such as utility vaults, manholes, or storm drain grates that would be cost prohibitive for the City to repair. A few locations also experience a narrowing to less than 4 feet for short distances where roadway width is briefly constricted, or might even be dropped in favor of a turn lane at larger volume intersections. The majority of Kennewick bicycle facilities fall into this category.

#### Designated Bicycle Routes

Designated bicycle routes consist of a system of bikeways designated by the roadway's jurisdictional authority with appropriate directional and informational route signs, with or without specific bicycle route numbers. Bicycle routes, which might be a combination of various types of bikeways, should establish a continuous routing. Designated bicycle routes can be divided into shared roadway and shared-use path facilities.



#### Shared Roadway

On a shared roadway, bicyclists and motorists use the same travel lane. Shared roadway bicycle routes can be placed on streets with wide outside travel lanes, along streets with bicycle route signing, or along local streets where motorists have to weave into the lane in order to safely pass a bicyclist.

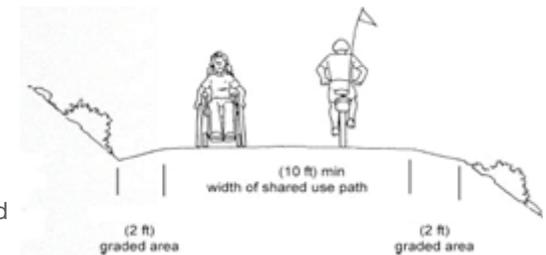


#### Shared-Use Path

A shared-use path is a bikeway outside the traveled way and physically separated from motorized vehicular traffic by an open space or barrier, and is either within the highway right-of-way or within an independent alignment. Shared-use paths are also used by pedestrians (including skaters, users of manual and motorized wheelchairs, and joggers) and other authorized motorized and non-motorized users. Shared-use paths primarily attract recreational users, because they typically wind through and connect destinations; they also are an excellent opportunity to function as motorized transportation routes. Shared-use paths may be the preferred facility for any cyclist uncomfortable with the roads with vehicles.



Implementation of these specific terms will help advance consistent dialogue between the City of Kennewick and the community regarding bicycle facility planning and design, within the context of multi-modal systems development.



Shared-use paths should be constructed to minimum widths of 10 feet (Source: FHWA Designing Trails and Sidewalks for Access)

## Defining Bicycle Users

There are a variety of bicyclists traveling within the study area, depending on their skills, confidence and preferences. According to AASHTO,

“some riders are confident riding anywhere they are legally allowed to operate and can negotiate busy and high speed roads that have few, if any, special accommodations for bicyclists. Most adult riders are less confident and prefer to use roadways with a more comfortable amount of operating space, perhaps with designated space for bicyclists, or shared use paths that are away from motor vehicle traffic. Children may be confident riders and have excellent bike handling skills, but have yet to develop the traffic sense and experience of an everyday adult rider.”

For the purpose of this study the following categories of bicycle user types are applied as the impact of different bicycle facility types are determined:

**Advanced** or experienced riders are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with a minimum of detour or delay. They are typically comfortable riding with motor vehicle traffic; however, they need sufficient operating space on the traveled way or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position.

**Basic** or less confident adult riders may also be using their bicycles for transportation purposes, e.g., to get to the store or to visit friends, but prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared use paths and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets.

**Children**, riding on their own or with their parents, may not travel as fast as their adult counterparts but still require access to key destinations in their community, such as schools, convenience stores and recreational facilities. Residential streets with low motor vehicle speeds, linked

with shared use paths and busier streets with well-defined pavement markings between bicycles and motor vehicles can accommodate children without encouraging them to ride in the travel lane of major arterials.

### Bicycle System Inventory

Kennewick’s bicycle system has many excellent features but is lacking a cohesive and connected system. Older arterial streets were originally constructed without bicycle lanes, but many arterial streets now have bicycle lanes. Exhibit 6-2 maps the current bicycle system within the Kennewick urban area. As **Exhibit 6-2** illustrates, major arterial streets such as Clearwater Avenue, Columbia Center Boulevard and portions of 4th Avenue remain without bicycle facilities.

The Kennewick bicycle system has all three types of bicycle facilities illustrated in **Exhibit 6-1**, and these facilities are spread throughout the City. Shared use paths are described below in the Trails/Shared Use Paths section; there are about 8 miles of shared use paths in Kennewick.

Bicycle lanes, or shy lanes, are located throughout the City, mainly on arterials such as Kellogg Street, Union Street, Vancouver Street, 4th Avenue, 27th Avenue, and Canal Drive. They are often near transit centers, shopping malls, and public facilities, though may not be right next to the facility. These lanes also extend into other jurisdictions, particularly Richland to the west, as bicycles are prohibited along US 395 across the Columbia River between Kennewick and Pasco. There are about 38 miles of bicycle lanes, or shy lanes, in Kennewick.

A signed shared lane, or shared use lane, can be on nearly any City street with the capacity to accommodate bicycles. There are about 23 miles of shared lanes across the City.

Although the City’s bicycle facilities cover most of the City, there are connections that need to be made and activity centers that should be served by adequate bicycle facilities. As mentioned above, Clearwater Avenue and Columbia Center Boulevard do not have many bicycle facilities. Considering the amount of commercial activity along these corridors, this lack of connectivity is a large gap



Source: [www.canada.com/ottawacitizen/news](http://www.canada.com/ottawacitizen/news)



Source: [www.contextsensitivesolutions.org](http://www.contextsensitivesolutions.org)



Source: [www.indygreenways.org](http://www.indygreenways.org)

in Kennewick's bicycle system. Also, as schools often serve as community hubs in addition to educational facilities, the presence of bicycle facilities near schools is a priority. For example, Southridge High School in the growing southwestern portion of the City is not connected to any type of bicycle facility. Older sectors of Kennewick also have schools and activity centers disconnected from bicycle facilities.

### Trails/Shared-Use Paths

Trails and shared-use paths are facilities which can be used not only by pedestrians, but also by other non-motorized vehicles, such as bicycles. There are several of these types of trails in the City of Kennewick, though the largest shared-use path is the Sacajawea Heritage Trail. This non-motorized route extends throughout the Tri-Cities area, including a section bordering the Columbia River in the northern section of Kennewick. Another major trail in Kennewick is the Audubon Nature Trail, which runs through Columbia Park, also located along the Columbia River.



Of the many trails/shared-use paths in the City of Kennewick, the largest shared-use path is the Sacajawea Heritage Trail.

### Safety Conditions

Cyclist conflicts with other vehicles, or even with pedestrians, are a major issue in any urban transportation network. Busy arterials, sometimes not designed or constructed with non-motorized users in mind, can be dangerous. In Kennewick between 2001 and 2004, there were a total of 44 automobile collisions involving bicycles. Of these collisions there was one fatality, and nine property damage-only collisions. The fatality occurred on a corridor with several other collisions during this time period: Clearwater Avenue. There were six other collisions along this same corridor in the four years examined, and nearly all of them—with the exception of the fatal collision—took place between Edison Street and Vista Way.

There were also several bicycle-related incidents along 10th Avenue and 4th Avenue. There were eight collisions along 10th Avenue, mainly between Vancouver Street and Gum Street. The six collisions along 4th Avenue took place between Union Street and Garfield Street.

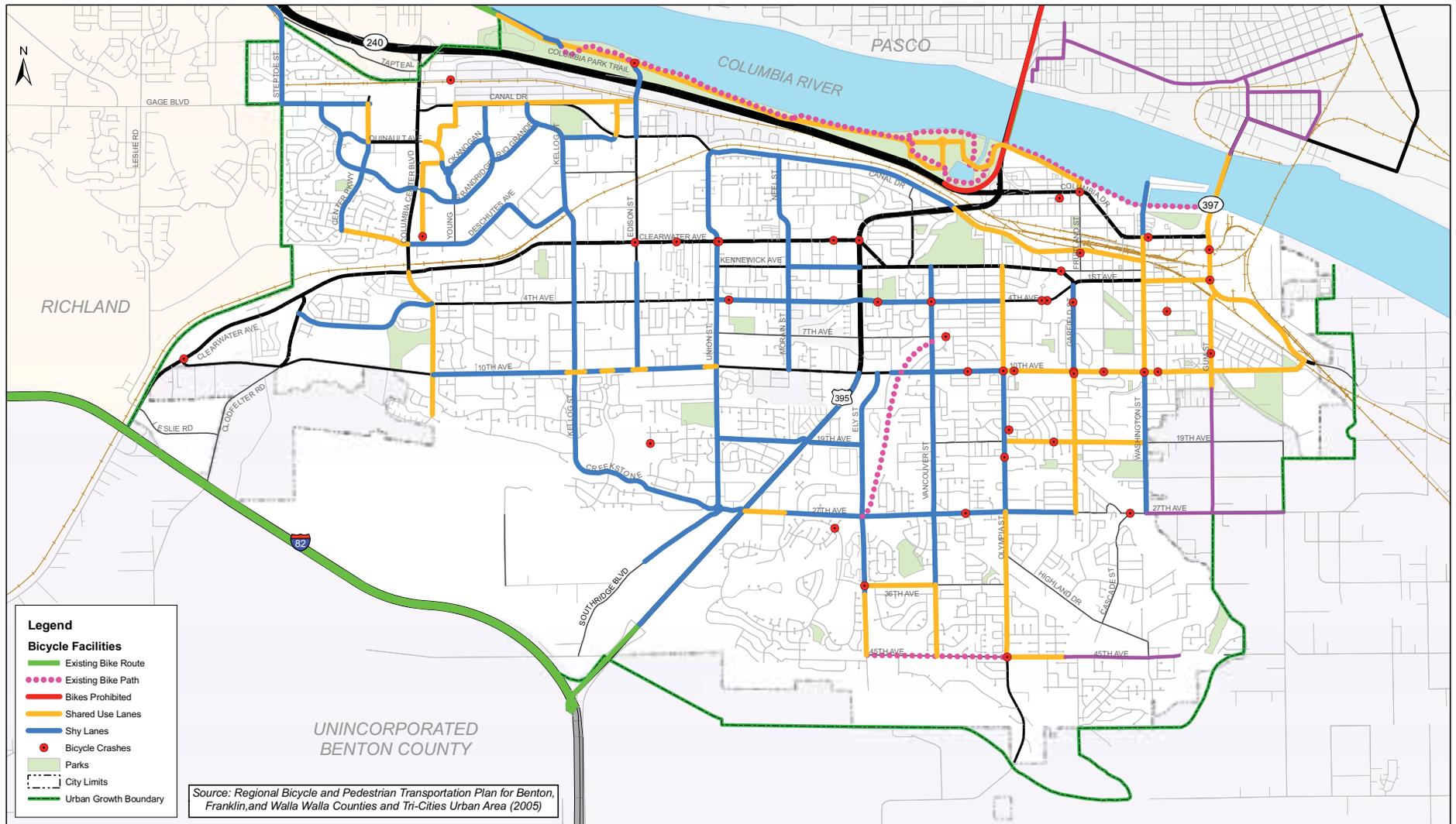
One way to improve safety conditions for cyclists is to ensure that the transportation network allows for the appropriate separation of modes. For cyclists, modal separation along high volume arterials could improve safety and increase the efficiency of the non-motorized transportation system. Some recommendations for these types of improvements are discussed in the next section.

### Bicycle Projects

A recommended list of projects has been generated to improve the overall safety and efficiency of the City's bicycle system. An evaluation of existing bicycle conditions as well as traffic operations, safety, and connectivity issues all contributed to producing the project list.

The bicycle system improvement projects total \$8,010,000 in 2007 dollars. These projects are intended to make better connections within Kennewick's bicycle system for all types of bicycle users. There are three types of projects that can include bicycle elements. First, as with those listed in Exhibit 6-3, there are several projects dedicated to bicycle facilities only. These projects include possible re-striping, new shared

Exhibit 6-2 Existing (2006) Bicycle Facilities



### Exhibit 6-3 Bicycle System Project List

Map ID	Project Name	Project Limits	Project Description
501	4th Avenue / 1st Avenue	Olympia Street to SR 397	Consider re-striping to add shy lanes
503	Olympia Street	Canal Drive to Kennewick Avenue	Evaluate possible shared-use path connection (preserve ROW)
504	Fruitland Street	Kennewick Avenue to Columbia Park Trail	Street improvement to include shy lanes, curb & sidewalk
505	27th Avenue	Garfield Street to Cascade Street	Consider re-striping to add uphill shy lane
506	Center Parkway	Deschutes Avenue to Steptoe Street	New shy lanes
507	10th Avenue	Union Street to Ely Street	Consider re-striping to add shy lanes
508	Canyon Lakes Drive / 36th Avenue	US 395 to Ely Street	Consider re-designating to shared-use lane. Provide traffic calming features.
509	New Shared-Use Path	Hildebrand Boulevard to Columbia Center Boulevard to Creekstone Drive	New shared-use path
510	Edison Street	100 ft South of Clearwater Street to Kennewick Avenue	Consider re-striping to add shy lanes
511	Canal Drive	Edison Street to Quinault Street	Consider re-striping to add shy lanes
512	Leslie Road	Clearwater Avenue to the east	Consider re-striping to add shy lanes

use lanes, and new bicycle lanes. Next, there are projects listed in Chapter 4 as roadway projects that may include bicycle facilities.

Also in Chapter 4 is the Road Diet section; this discussion and analysis includes several recommendations for new bicycle facilities. As the City considers re-striping some of its arterials with on-street bike lanes it may encounter the need to reduce travel lane widths and parking space. An excellent guide for consideration when reducing travel lane widths is ITE's Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities<sup>3</sup>.

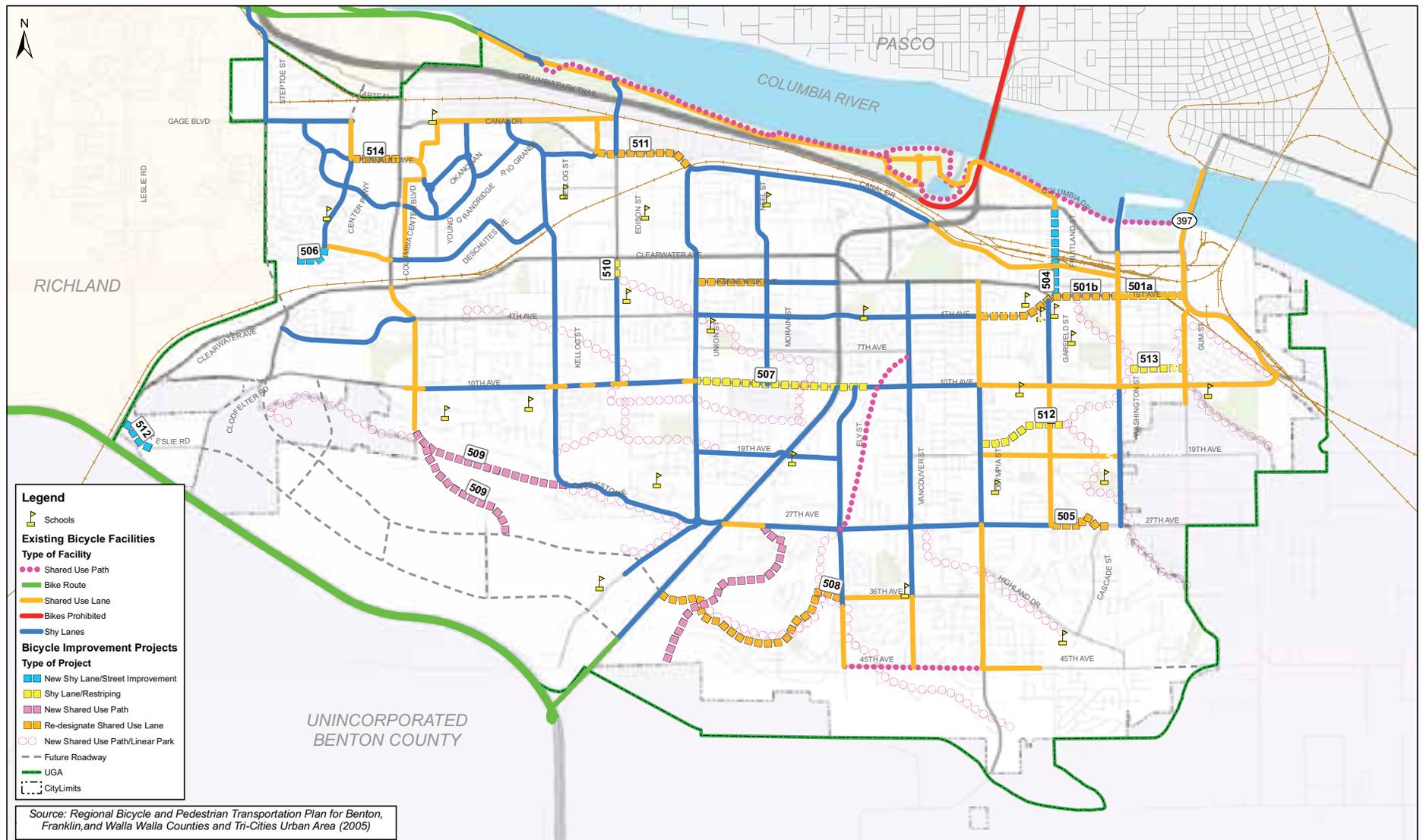
In addition, as mentioned in Chapter 5, Kennewick currently has shared use paths that connect non-motorized transportation facilities. Additional shared use paths are planned, and will be coordinated within the Municipal Services Department. This coordination will include how to prioritize the projects, and how to fund improvements. The City's overall motivation for constructing shared use paths is to provide connections between residential subdivisions and other activity centers such as schools. These paths also serve as important recreation facilities within the growing Kennewick community. There are about 23 miles of shared use path projects within the city limits.

See **Exhibit 6-3** for a project list and project descriptions. **Exhibit 6-4** shows the bicycle system project locations, which also serves as the future Bicycle Route and Facility System map, reflective of current facilities and recommended projects as part of the TSP.



Public rights-of-way along Kennewick's arterial system offers opportunity to expand the shared use path network for bicyclists and pedestrians.

Exhibit 6-4 Bicycle System Projects & Future Bicycle Route and Facility System



## Bicycle Design Guide

This chapter also includes recommendations for new or revised bicycle facility design guides as part of the Kennewick TSP.

### Shared-Lane Symbols and Markings

In the absence of sufficient space to include on-street bicycle lanes on several of Kennewick’s major streets, it is important to provide greater route designation for shared travel lanes. These shared lanes, if posted and marked appropriately, indicate significant bicycle traffic to both the motorists and cyclists. The use of “sharrow” pavement markings is being considered as a part of the update to the MUTCD for these conditions. Example “sharrow” pavement markings are illustrated in **Exhibit 6-5**. WSDOT has not yet considered

and approved use of “sharrow” pavement markings for shared-lane designation.

Further statewide policy consideration may be required before application and appropriate designation of sharrow pavement markings within the City of Kennewick. The City should exercise caution in “sharrow” pavement marking placement, particularly along streets with on-street parking. See San Francisco’s research and findings in report titled “San Francisco’s Shared-Lane Pavement Marking Study<sup>4</sup>.”

**Exhibit 6-5 “Sharrow” Shared-Lane Symbol and Pavement Marking**



Source: San Francisco’s Shared-Lane Pavement Marking Study, February 2004.

### Bike Lane Symbols and Markings

The City’s current design standards for bike lane symbols and markings require some minor refinement for consistency with the MUTCD. **Exhibit 6-6** summarizes the recommendations of the MUTCD.

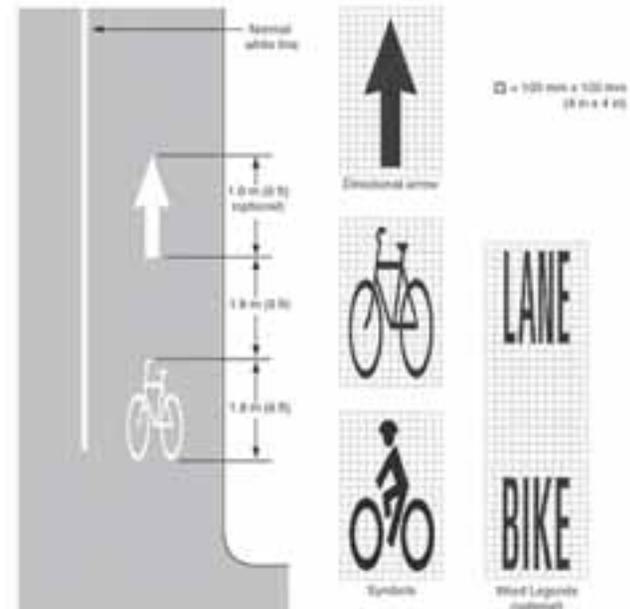
## Bicycle Route Signing

Auxiliary signs may be used with standard bicycle route signs to inform cyclists of route continuity and major cycling attractions. Revised research by MUTCD sub-committee work has recently been completed and the MUTCD will be updated to include findings. Meanwhile, examples are shown in **Exhibit 6-7**.

The City of Kennewick should consider implementation of a city-wide bike route signing program that better links the on-street facilities and the shared-use paths. Once the MUTCD is revised, the City should consider the following for use in the installation of junction, cardinal direction and alternative route auxiliary signs (in conjunction with appropriate Bicycle Route Guide signs, Bicycle Route signs, or US Bicycle Route signs):

Advance Turn Arrow (M5 series) and Directional Arrow (M6 series) auxiliary signs should be mounted below the

**Exhibit 6-6 MUTCD Standard Bike Lane Symbols**



Inconsistent Bike Lane Markings – HOV Diamond

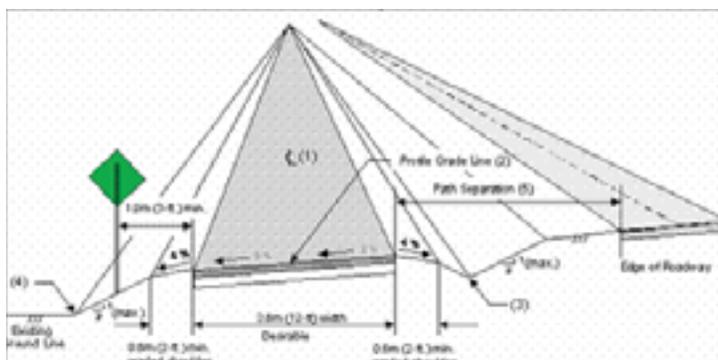
appropriate Bicycle Route Guide signs, Bicycle Route signs, or US Bicycle Route signs.

- Route sign auxiliaries carrying word legends that are used on bicycle routes should have a minimum size of 12 x 6 inches.
- Route sign auxiliaries carrying arrow symbols that are used on bicycle routes should have a minimum size of 12 x 9 inches.
- All route sign auxiliaries are to match the color combination of the route sign that they supplement.
- Destination may be mounted below Bicycle Route Guide to furnish additional information, such as directional changes in the route, or intermittent distance and destination information.

### Shared-Use Path Standards

As the City of Kennewick proceeds to extend the Sacajawea Heritage Trail, the Audubon Nature Trail, and the Zintel Canyon Trail, a consistent design standard should be used. The City should consider adopting those standards set forth in FHWA’s Designing Sidewalks and Trails for Access for ADA compliance and AASHTO Guide for the Development of Bicycle Facilities. See Exhibit 6-8 for a typical cross-section. AASHTO considers ten feet as recommended pavement width (8 feet is adequate under low volume conditions), but 12 or 14 feet as desirable if significant volume and mix of users (jogger, walkers, cyclists, etc.) is present.

### Exhibit 6-8 Example Cross Section of Two-Way Shared Use Path on Separate Right-of-Way



### Other Bicycle Design Features

#### Bicycle Parking

Many potential bicyclists are hesitant to ride for utilitarian trips because they fear their bicycles will get stolen. There is a perception that any bicycle rack or hardware is not very helpful in deterring theft. The real and perceived fear of bicycle theft is an impediment to greater bicycle ridership and nationally.

The City of Kennewick should review and consider appropriate revisions to its building code and development ordinance to help ensure the appropriate placement (convenient and safe) and number of bicycle racks through the following measures:

- Placement — an adequate number of bicycle parking racks and/or lockers as needed at the appropriate destinations, such as schools and colleges, public gathering places, transit stations, bus stops, and shopping centers.
- Design—the recommended style of bicycle rack is the inverted "U" Bike Rib bicycle rack or the equivalent.
- Security—encourage employers and property owners to either provide secure parking near building entrances and protected from rain, or allow secure storage inside buildings.
- Convenience—encourage merchants to provide secure, practical bicycle parking for customers.

#### Shared Use Path Crossings

The City of Kennewick should consider appropriate planned intersections of shared use paths and arterial/collector streets. Possible mitigation could include signage, pavement markings, curb extensions and median refuge and/or a hybrid pedestrian signal (Hawk Signal).

#### Bicycle Detection at Traffic Signals

The City of Kennewick should consider the need for bicycle detection when developing detection layouts at signalized intersections.

### Exhibit 6-7 Example of Auxiliary Bike Signs



## Bicycle Implementation Strategies

In implementing the non-motorized section of the TSP, several methods of providing bicycle facilities are currently available to the City:

- Inclusion in TIP. The Transportation Improvement Program should be updated with transportation system projects (sidewalk, multi-use path, bicycle lane and shared travel lane improvements) as prioritized in the TSP. Kennewick's TIP includes specific bicycle improvements in the Bicycle and Pedestrian Improvements Program.
- Feasibility of necessary improvements. Conduct further operational studies in follow-up to recommended road diet projects (see Chapter 4) to document motorist and bicycle volume, speed and safety characteristics to determine feasibility of re-striping other streets to include on-street bicycle lanes.
- State Coordination. Coordination with WSDOT is essential to assure that adequate pedestrian facilities are included in all WSDOT improvements to SR 240 and US 395, particularly at freeway/expressway interchanges and crossings (underpasses and overpasses) of state highways, including sufficient street lighting for non-motorized safety.
- Bicycle Storage. Establish bike facility (secure parking, showers, and changing rooms) and other bicycle amenities in the downtown core area and other major activity and employment centers.

## Endnotes

1. *Association of American State Highway Transportation Officials. Guide for the Development of Bicycle Facilities, Washington, D.C. 1999.*
2. *Manual of Uniform Traffic Control Devices, U.S. Department of Transportation - Federal Highways Administration, 2004.*
3. *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, Institute of Transportation Engineers, 2006.*
4. *Shared-Lane Pavement Marking Study, City of San Francisco, February 2004.*

Chapter 7

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# Transit and TDM





As the costs of fuel and street projects increase there will be greater demand and emphasis on public transportation services to address the mobility needs of Kennewick's residents. Furthermore, Washington is presently considering amendments to the Growth Management Act and other statewide policies to address climate change issues (see **Appendix C**). Local planning efforts will likely be encouraged and perhaps required to further emphasize transportation and land use plans, programs and policies that help reduce (single-occupant) vehicle miles traveled (VMT) per capita, resulting in lower vehicle emissions. Transit is a key modal element of Kennewick's TSP, and will become an increasingly more important mobility option for Kennewick residents. Transportation demand management (TDM) measures, combined with the growing role for transit in Kennewick and the Tri-City area, will also help to reduce vehicle emissions growth. Both the transit and TDM elements of the TSP are described below.

## Transit

Kennewick and the surrounding Tri-City area have historically supported public transportation through flexible and fixed-route, bus transit services. Ben Franklin Transit is the primary bus operator in the Tri-Cities, but there are additional forms of public transportation available to Kennewick residents. While the City does not directly own and operate public transit, there are many ways in which it supports transit through multi-modal system operations and project and program development.

### Goal, Objectives, and Policies

The City of Kennewick has the following goal, objectives, and policies for the coordination of planning and development of transit-related facilities within the City.

**GOAL:** *To provide a city-wide street and sidewalk system that results in efficient transit operations – both current and future, as well as safe and convenient pedestrian and bicycle access to public transportation services and facilities.*

#### Objective No. 1

*Designate major streets as transit focal points in order to enable transit vehicles to operate effectively in mixed traffic.*

##### **Policy 1.1** *Transit-supportive Street System Design*

The City will include the consideration of transit operations in the design and operation of street infrastructure in identified transit-oriented centers and corridors, as well as in other appropriate locations.

#### Objective No. 2

*Provide a sidewalk system that is pedestrian friendly by design, with access to transit stops and transit centers.*

##### **Policy 2.1** *Transit-supportive Urban Design*

Through its zoning and development regulations, the City will facilitate accessibility to transit services through transit-supportive streetscape, subdivision, and site design requirements that promote pedestrian connectivity, convenience, and safety.

#### Objective No. 3

*Provide sufficient street and intersection capacity to accommodate future bus operations.*

##### **Policy 3.1** *Transit Facilities*

The City will continue to work with the Ben Franklin Transit District and other State and local jurisdictions to identify and develop capital facilities for utilization by express and regular transit services, vanpools, and carpools.

#### Objective No. 4

*Work with Ben Franklin Transit to provide sufficient sidewalk capacity along arterial and collector street bus routes to accommodate transit facilities such as passenger shelters.*

##### **Policy 4.1** *Pedestrian Facilities*

The City will work with Ben Franklin Transit to ensure that arterial and collector streets' sidewalk standards are able to



While the City does not directly own and operate public transit, there are many ways in which it supports transit through multi-modal system operations and project and program development.

accommodate transit amenities as necessary along arterial and collector street bus routes, and will coordinate with Ben Franklin Transit on appropriate locations.

### Objective No. 5

*Provide key pedestrian links between major activity areas (current and future) and transit focal points.*



GPS units were used to collect Kennewick's inventory of bus stops along the arterial and collector system.

#### **Policy 5.1** *Connectivity Between Activity Areas*

Where few or no pedestrian facilities exist, the City will encourage sidewalks, improved shoulders, or off-street trails between new and existing developments and other activity areas to enhance the area's pedestrian connectivity.

#### **Policy 5.2** *Intermodal Connectivity*

The City of Kennewick will encourage connectivity between different travel modes. Transit transfer and park-and-ride facilities should be accessible by pedestrian, bicycle, bus, and automobile travel modes. Intercity passenger bus terminals should be accessible by transit services.

### Existing Transit and Public Transportation

This section describes current and potential new public transportation services and facilities affecting the City of Kennewick. Included in the description is a summary of current fixed routes and service levels, effective July 2007.

Transit and public transportation facilities in the Kennewick area are operated by Ben Franklin Transit (BFT). The transit services available include bus transit, vanpooling, park-and-rides lots, taxi feeder services, and dial-a-ride service.

**Exhibit 7-1** shows the bus routes within the City, as well as transit centers, park-and-ride lots, transfer points, and other transit facilities. The infrastructure of the transit system is described below.

### Bus Routes

There are eight routes that regularly run within the City of Kennewick; these include route numbers 40, 42, 45, 46, 47, 48, 49, 50, and 52. In addition, one route, Route 55,

operates within the City but only during the summer, and three others, Routes 39, 120, and 160, serve Kennewick and the surrounding Cities of Pasco and/or Richland. All routes operate with either half hour headways (Routes 39, 42, 50, 52, 120, and 160) or hour headways. All transit routes operate between the hours of 6:00am and 7:00pm Monday through Friday and 8:00am to 7:00pm on Saturdays.

Ridership data for Kennewick bus routes was obtained from Ben Franklin Transit. **Exhibit 7-2** summarizes the ridership data for all the boardings in January of 2006, as well as the boardings for all of 2005.

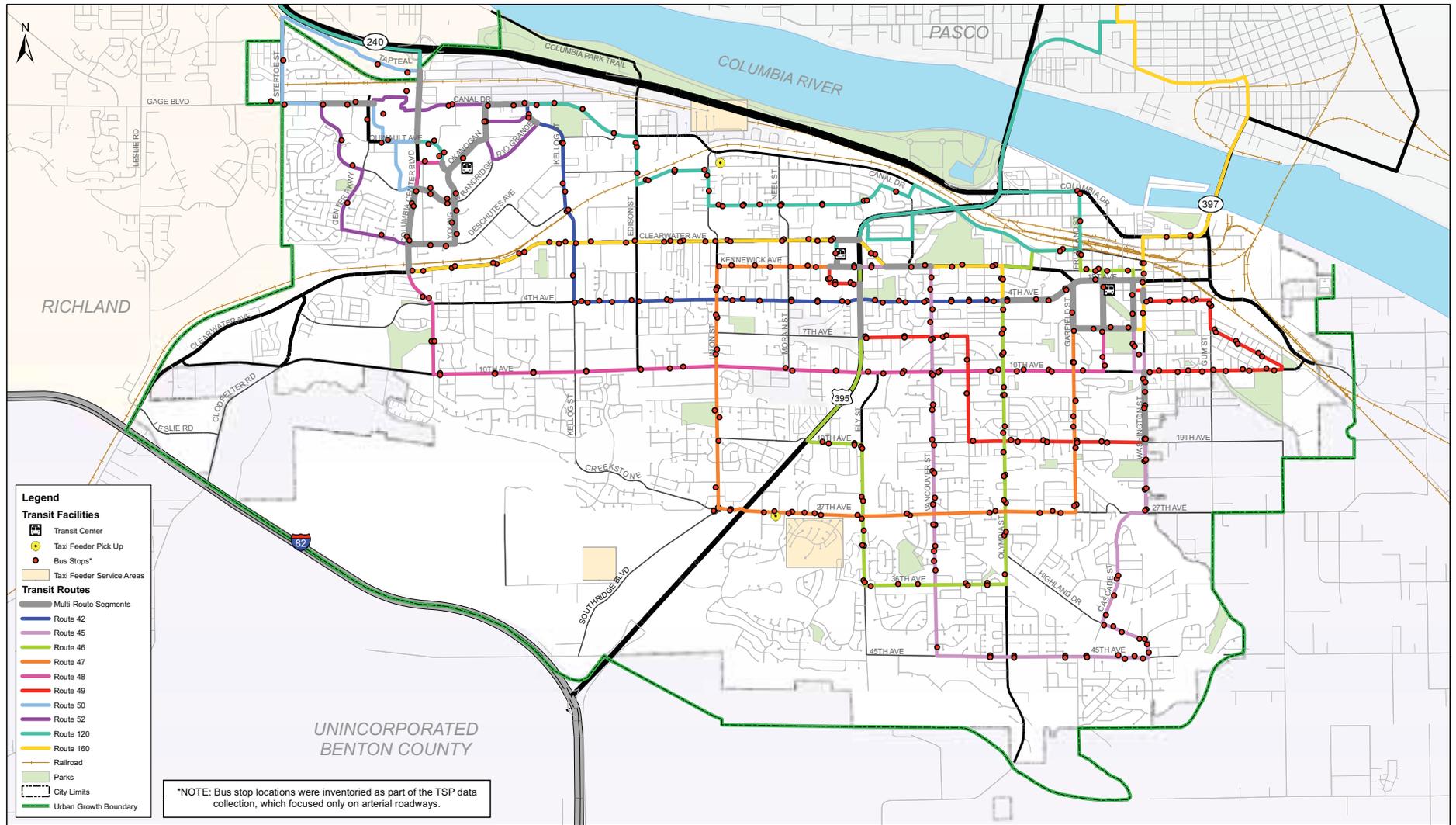
As shown before, the two routes with the highest amount of boardings are the intercity routes; however those take into account all boardings, not just boardings in Kennewick. The local Kennewick route with the highest boardings is route 42, with over 120,000 boardings in 2005 and over 12,000 boardings in January of 2006.

The BFT route network is extensive, with a couple of exceptions. The Southridge area on the southwest side of the City is growing, and yet it has no transit service. Land use plans in the area indicate that over 1000 new housing units will be built in this area between now and 2025. Accommodating an increased demand from this neighborhood should be a priority for the City and BFT. Meeting the transit demand could include fixed route service, additional vanpool service, or additional park and ride facilities. Other locations that deserve a closer look for additional park and ride facilities are at the intersections of Canal Drive and Neel Street, and Canal Drive and SR 395

### Bus Stops & Related Amenities

Within a transit system, additional factors that users consider in their travel decisions are curb-side factors. These factors affect transit users' comfort, safety, and convenience. Bus shelter design and placement are important examples of curb-side factors. In the course of the non-motorized data inventory discussed in **Chapters 4 and 5**, GPS units were used to collect Kennewick's inventory of bus stops and curb-side factors.

Exhibit 7-1 Transit Routes and Facilities



**Exhibit 7-2 Transit Ridership Data for Bus Routes Serving Kennewick**

Route Description	Route Number	Boardings January 2006 <sup>1</sup>	Boardings 2005 <sup>1</sup>
Knight St. TC to Three Rivers TC	39	10,520 <sup>2</sup>	116,552 <sup>2</sup>
Dayton Transfer Point to Three Rivers TC via Grandridge, Canal, Kellogg, 4th	42	12,603	122,429
Dayton Transfer Point to Huntington TC via Kennewick Ave, Vancouver, 45th	45	6,414	60,108
Dayton Transfer Point to Huntington TC via Kennewick Ave, Olympia, Fruitland	46	5,397	57,421
Dayton Transfer Point to Huntington TC via Kennewick Ave, Union, 27th Ave	47	9,377	103,664
Dayton Transfer Point to Three Rivers TC via 10th Ave, Columbia Cntr Blvd, Quinault	48	8,860	94,943
Dayton Transfer Point to Huntington TC via 2nd, Hwy 395, 19th, Washington	49	8,539	84,848
CC RIDER – around Columbia Center Mall and Three Rivers TC: Taptel Loop	50	5,400	64,084
CC RIDER – around Columbia Center Mall and Three Rivers TC: Colonade Loop	52	5,275	63,179
Columbia Park	55	-	4,885
West Richland/ Richland/ Kennewick/ Pasco	120	45,934 <sup>2</sup>	500,417 <sup>2</sup>
Pasco/ Kennewick	160	33,102 <sup>2</sup>	364,820 <sup>2</sup>
<b>Total</b>	<b>12 routes</b>	<b>151,421<sup>2</sup></b>	<b>1,637,350<sup>2</sup></b>

1. SOURCE: Email from Allen Walch, BFT (4/11/06).

2. Number of passenger boardings.

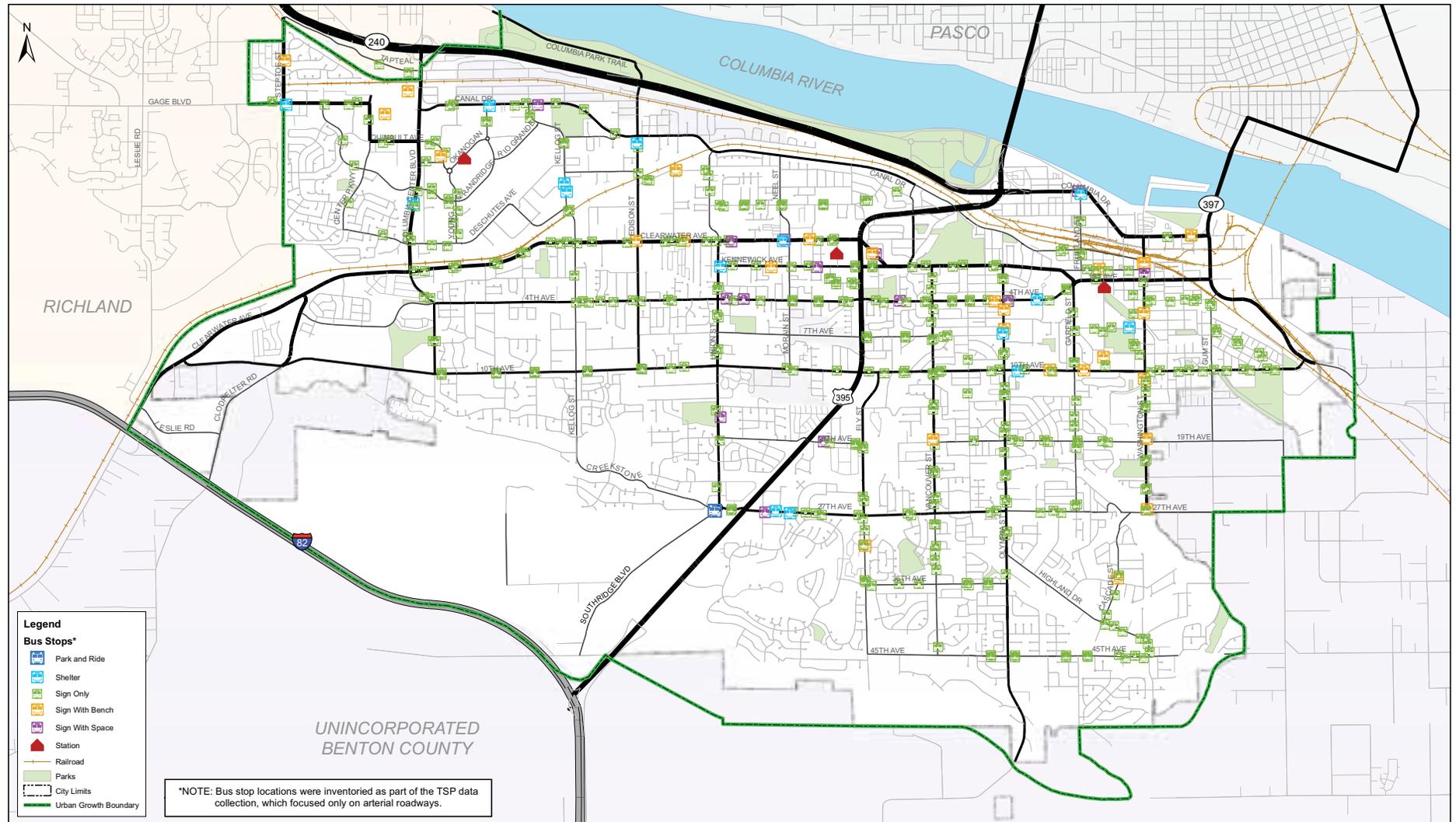
3. Includes boardings outside of City.

The data inventory revealed that there are approximately 418 bus stops associated with the bus routes described in the section above. Of these stops, there are three transit stations, one Park and Ride, and 15 bus stops with shelters. There are 27 bus stops with benches. The remaining bus stops in Kennewick have no additional amenities beyond a bus stop sign. See **Exhibit 7-3** for the locations of all these transit facilities.

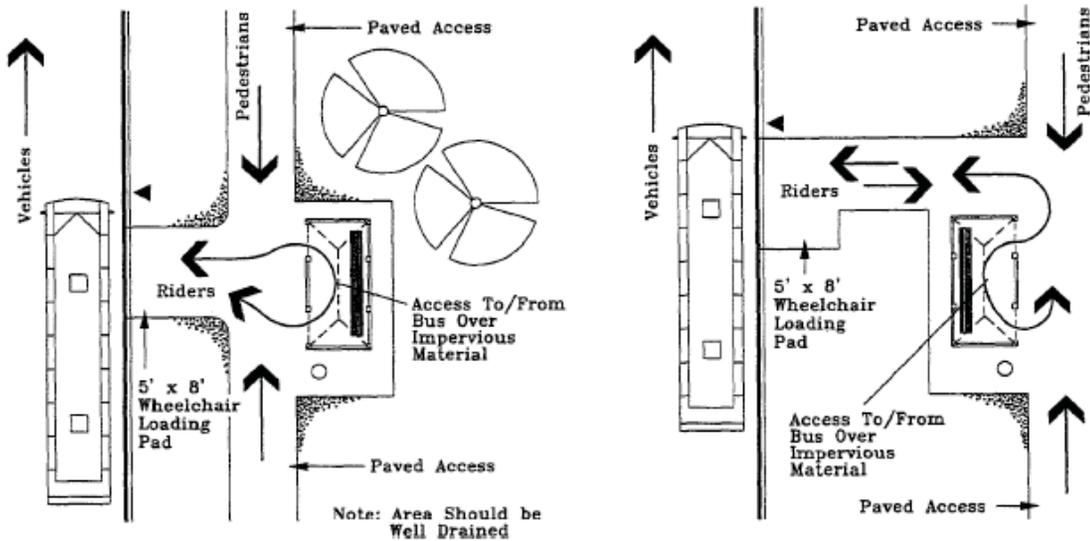
In order to implement the City's Transportation Policies from the Comprehensive Plan, Kennewick may consider increasing the City's curb-side factors in collaboration with BFT. The locations at which the City may consider these factors are along routes with a high proportion of transit ridership, or along routes in which ridership is expected to rise. A few examples of such places include: along Route 120 on the northern side of the City, along Routes 50 and 52 in the northwest section of the City, and along Route 48 through the central part of the City. Along Route 49 may be another important location for curb-side improvements, as there are currently limited amenities and the eastern portion of the route encircles a dense area of the City. In addition, an arterial sidewalk project is proposed along Gum Street in between 10th Avenue and SR 397<sup>1</sup>; the sidewalk project and the bus stop enhancements would be mutually beneficial.

Amenities that would make transit a more attractive travel option include: shelters, benches, shade trees, and adequate sidewalks. All of these amenities should comply with the Americans with Disabilities Act (ADA). The federal Transit Cooperative Research Program (TCRP) outlines several of these design options in its report, *Guidelines for the Location and Design of Bus Stops*.<sup>2</sup> **Exhibit 7-4** displays options from this report that have accessibility for all users between the bus shelter and the curb. This universality is important for users with disabilities and for all users in the winter months, for example, when snow accumulation may block access between the sidewalk and the curb.

Exhibit 7-3 Transit Stops by Type



## Exhibit 7-4 Bus Stop Design Examples



### Park & Rides/Transit Centers

Two transit centers are located in Kennewick: Three Rivers Transit Center off Okanogan Place and Huntington Transit Center off Huntington Street. These centers function as hubs for riders to easily change routes within the transit system. Huntington Transit Center also functions as a park and ride facility, with a supply of 135 parking stalls. Another park and ride is located within Kennewick, on 27th Avenue one block west of US 395. This lot has a supply of 50 parking stalls. Average monthly occupancy information was obtained from the Ben-Franklin Council of Governments (BFCOG) and is shown in **Exhibit 7-5**.

The 27th Avenue park and ride is not a transit center with multiple routes serving the location, but rather serves as a “park and pool” location. Typically at these locations, commuters park their cars and then carpool or vanpool together to work. Vanpooling and carpooling are discussed later in this section.

Also within the City is Dayton Transfer Point, located on Dayton Street between 1st Avenue and Keewaydin Drive. This point is for riders to transfer buses, but does not have facilities typically associated with transit and is aesthetically more like a regular bus stop.

### Taxi Feeder Service

BFT provides assistance for people who need to take a bus, but may not be located close enough to a transit stop to walk there. Certain areas are defined within the City to assist these people and are known as Taxi Feeder Service Areas (TFSAs). People from these areas can call the designated cab company to be picked up at a certain time at a specified stop that serves the designated TFSA. The call must be placed 30 minutes prior to pick-up time. The cab then takes the person to the nearest bus stop, where the person then rides the bus, paying once he or she boards. To call a cab for the return trip, riders notify the bus driver and a cab is called that will wait at the designated stop to take the rider to the original TFSA pick-up/drop-off location. This service does not cost transit riders extra and is available during normal operating hours, with the exception of the Southridge High School TFSA, which is not served on school days during the hours of 7:00pm to 7:30am and 2:00pm to 2:30pm. Other TFSAs within Kennewick are the Canyon Lakes TFSA and the Lampson Home Sites TSFA.

### Vanpooling

Another service BFT offers is vanpooling. This transit service offers commuters an opportunity to share a ride in one of BFT’s 15-passenger vans, with each person helping pay for fuel, maintenance, car payment, and insurance in one fee. This fee is collected by the driver of the van, who is also responsible for refueling the van; in return the driver is able to ride free. A typical cost for a BFT vanpool rider is \$55 per month, though the cost varies by the number of riders and the mileage of the total trip.

## Dial-A-Ride

BFT also provides Dial-A-Ride service, which is a shared-ride, door-to-door transportation service for people with a disability that cannot use customary transit service. Customers call the Dial-A-Ride number between 9:00am and 5:00pm at least one day prior to their trip to request a pick up time. For trips other than those to medical appointments, a return time must also be scheduled. The operation hours are consistent with BFT's regular routes: 6:00am to 7:00pm Monday through Friday and 8:00am to 7:00pm on Saturdays.

## Transit+PLUS

Transit+PLUS is similar to Dial-A-Ride, but operates during off-hours and is available to the general public. It is a shared-ride, curb-to-curb service that is available between the hours of 7:00pm and 12:30am Monday through Saturday and between 8:00am and 5:00pm on Sundays. Customers must call ahead of time to schedule a ride, and one day ahead for a ride on Sunday.

## Transit Fares

The different services provided by BFT have different costs associated with them. BFT offers the general public the option of purchasing monthly transit passes that enable the rider with unlimited amount of use of the system. Also offered are 10-day tickets for those that do not use transit frequently. Daily cash fares are collected for users without a prepaid ticket or pass.

## Transportation Demand Management

*Transportation Demand Management (TDM)* is a general term for various strategies that increase transportation system efficiency. TDM treats mobility as a means to an end, rather than an end in itself. It emphasizes the movement of people and goods, rather than motor vehicles, and so gives priority to more efficient modes (such as walking, cycling, ridesharing, public transit and telecommuting), particularly under congested conditions.

## Exhibit 7-5 Park & Ride Average Monthly Occupancy

Park & Ride Location	Supply	2005 Average Occupancy	2005 Avg % Occupancy	5 Year Average (2001 to 2005)	5 Year Average % Occupancy
Huntington Transit Center P&R	135	32	24 %	31	20 %
27th Avenue P&R	50	32	63 %	27	61 %

The City of Kennewick has the following goal, objectives and policies for the coordination and implementation of TDM measures and programs.

**GOAL:** *To reduce single-occupant vehicle demand in Kennewick through a variety of transportation demand management strategies.*

### Objective No. 1

*The City should seek to minimize the overall number of vehicle-miles-traveled city-wide through the use of demand management strategies.*

#### Policy 1.1

The City should promote and support Transportation Demand Management investments that may include, but are not limited to, the following strategies:

1. Parking management,
2. Trip reduction ordinances,
3. Transit-oriented and pedestrian-friendly design, and
4. Ride-sharing coordination with regional partners.

#### Policy 1.2

The City should work with employers to encourage the reduction of commuter single occupant-vehicle use, in support of the Washington State Commute Trip Reduction Law and regional vehicle trip reduction strategies.



BFT provides Dial-A-Ride service, which is a shared-ride, door-to-door transportation service for people with a disability that cannot use customary transit service.

**Policy 1.3**

The City should coordinate with BF Transit to promote the use of transit and vanpools, in support of the Washington State Commute Trip Reduction Law and emerging regional vehicle trip reduction strategies.

**Objective No. 2**

*To work with the business community in Kennewick to establish a Transportation Management Association.*

**Policy 2.1 Target Marketing Efforts**

The City should target its marketing efforts to groups which have the greatest potential for reducing automobile trips, including employers and employment sites, and commuting students.

**Objective No. 3**

*To provide ongoing Kennewick staff support for a future Transportation Management Association.*

**Policy 3.1 Administer the Citywide TDM Program.**

The City of Kennewick should administer the Citywide TDM Program, including its component, the Hanford commute and Ben Franklin Transit vanpool programs. The Program may include, but is not limited to, the provision of:

1. 24-hour rideshare matching hotline;
2. carpool and vanpool match lists;
3. information and referrals to the public on transit service, vanpools, bicycle routes, teleworking, park-and-ride lots, other ridesharing agencies, and transportation services for special needs;
4. assistance in the formation of vanpools;
5. public outreach;
6. school outreach;
7. services to employers, including commuting surveys and individualized trip-reduction plans;
8. coordination with other agencies and organizations with similar goals; and
9. marketing of alternative transportation modes.

**Policy 3.2 Increase Marketing to Employers**

The City should provide assistance to employers in designing and implementing trip reduction plans at their work sites. Trip reduction plans will include strategies to encourage employees to use alternative transportation modes and discourage them from commuting in SOVs. Alternative work hours and teleworking will also be recommended as a way of reducing peak hour congestion

**Policy 3.3 Assist in the Formation of Vanpools**

The City should assist in providing information on forming and joining vanpools to employers and individuals and shall include this information as part of the general marketing materials of the Regional TDM Program. Ben Franklin Transit shall assist in the formation of new vanpools.

**Policy 3.4 Assist in the Formation of Transportation Management Associations (TMAs)**

The City should assist as facilitator in forming TMAs of interested employers. TMAs allow employers to pool resources in implementing trip reduction programs and providing services such as guaranteed-ride-home programs and vanpools.

**Objective No. 4**

*To include a Transportation Management Program, as part of the development application process for new office projects.*

**Policy 4.1**

The City should help establish guidelines for Transportation Management Programs, which will be intended for new office developments and their respective companies.

**Policy 4.2**

The City, through its zoning and development regulations, will encourage new commercial developments as part of mixed use projects or as near as possible to residential developments in order to reduce the number of vehicle trips generated.

The City of Kennewick's 2006 Comprehensive Plan outlines several strategies for reducing the amount of automobiles on the roads. These strategies are:

- Ride sharing
- Alternative work hours, or flextime to reduce peak hour congestion & auto trips
- Use of public transit
- Non-motorized modes of travel such as bicycles and walking<sup>3</sup>

The Benton-Franklin Council of Governments identified additional TDM strategies in its 2006-2025 Regional Transportation Plan. The City of Kennewick has adopted strategy number 4.

## Objective No. 5

*To monitor progress in achieving transportation demand management goals as called out in Transportation Management Programs.*

### **Policy 5.1** *Work with Other Agencies and Organizations*

The City shall work cooperatively with other agencies and organizations to further the goals of TDM and to ensure that efforts are coordinated.

### **Policy 5.2** *Monitor TDM Programs Nationwide*

The City should research the effectiveness of trip reduction efforts and programs throughout the nation to determine potential applicability for the Kennewick Urban Area.

## Objective No. 6

*To work with Ben Franklin Transit, Benton-Franklin COG, major employers, and other interested parties in supporting transportation demand management efforts affecting Kennewick, including ongoing programs involving Commute Trip Reduction.*

### **Policy 6.1** *Encourage State Agencies to Reduce Peak Hour Travel Demand*

The City of Kennewick should encourage the State of Washington to implement, through its agencies, significant measures that will reduce peak hour travel demand on Kennewick's street system. These measures should include the widespread institution of flexible-work schedules, increased carpooling, vanpooling, teleworking, and transit ridership.

### **Policy 6.2** *Assure Adequate and Consistent Funding for the Regional TDM Program*

The City should explore the availability of funding sources to assure the ongoing viability of the Regional TDM Program.

### **Policy 6.3** *Increase Follow-up Contacts to Employers and Schools*

The City should encourage ongoing trip reduction efforts, and offer assistance in monitoring and revising existing programs

at employment sites and colleges to ensure their ongoing viability. The City should also provide public recognition for ongoing efforts through newsletter articles and marketing materials.

### **Policy 6.4** *Increase Ridesharing/TDM Follow-up Contacts to Individuals*

The City should increase efforts to encourage individuals already using alternative transportation modes to continue in their behavior. The City should contact ridesharing applicants on a regular basis to offer additional assistance. The City should also encourage employers to include incentive and recognition programs for employees who already use alternative transportation modes.

The City of Kennewick has established several strategies to reduce transportation demand, and thereby addressing the City's transportation congestion. The aim of transportation demand management (TDM) programs is to reduce the number of vehicles on the area's roads, which will reduce the demand on the existing transportation network.

The City of Kennewick's 2006 Comprehensive Plan outlines several strategies for reducing the amount of automobiles on the roads. These strategies are:

1. Ride sharing
2. Alternative work hours, or flextime to reduce peak hour congestion & auto trips
3. Use of public transit
4. Non-motorized modes of travel such as bicycles and walking<sup>3</sup>

The Benton-Franklin Council of Governments identified additional TDM strategies in its 2006-2025 Regional Transportation Plan. The City of Kennewick has adopted strategy number 4.

1. Develop programs to reduce single occupancy vehicle use, vehicle miles traveled, and minimize trip length during peak periods.
2. Encourage employers to develop & implement transportation demand management plans that reduce single occupancy vehicle use and travel during peak periods.
3. Continue to work with decision-makers, jurisdictions, and other agencies to encourage the Department of Energy (DOE) to implement the Federal Employees Commute Trip Subsidy

Program.

4. Encourage employers to offer flexible work schedules (flex time), telecommuting, 4-day workweek, and other incentives that reduce peak period travel and lessen the need for roadway capacity.
5. Encourage commercial drivers to make deliveries and the shipping of freight during off-peak hours.
6. Investigate ways in which parking can be managed to decrease drive alone commuters.
7. Explore land use strategies that can reduce the use of single occupancy vehicles.
8. Gather support from jurisdictions and decision-makers to promote the adoption of the Commute Trip Reduction (CTR) Law.<sup>4</sup>

The City of Kennewick may choose to consider the adoption of additional TDM strategies when the transportation network's level of service standards are exceeded. As of July 2008, and at the request of BFCOG and WSDOT, the Tri-Cities is waiting on legislative action to extend an exemption of the CTR law pending completion of the interchange improvements at US 395 and SR 240. Technical data relating to congestion will be re-evaluated at project completion.

In connection with Washington State's Growth Management Act (GMA)<sup>5</sup>, the Department of Community, Trade and Economic Development (CTED) suggests that each jurisdiction's comprehensive plan include a description of its transportation demand strategies and how effective they have been. In addition, each jurisdiction's Transportation element of its Comprehensive Plan must include a TDM sub-element.<sup>6</sup> The City of Kennewick has a strong basis for transit growth in the coming years. The City's coordination with BFT regarding future improvements will be instrumental in serving a growing community and, in the coming years, an aging population. With the appropriate TDM strategies in place, Kennewick could significantly reduce the number of single-occupant vehicles on the transportation network and in turn reduce VMT per capita and emissions.

## Endnotes

1. *This project is identified in the project list as 409.*
2. *TCRP, Report 19- Guidelines for the Location and Design of Bus Stops. Washington, DC: National Academy Press, 1996. See online copy at: <http://www.trb.org/news/blurbs/detail.asp?id=2597>*
3. *City of Kennewick Comprehensive Plan*
4. *Benton-Franklin Council of Governments, 2001-2020 Regional Transportation Plan*
5. *See RCW 36.70A*
6. *See RCW 36.70A.070 (6)(a)(vi).*

Chapter 8

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# Freight Mobility, Air, and Water Transport





## Freight Mobility

The safe and efficient movement of freight and goods is vital to the economy of the region and to the City of Kennewick. The geographic area in which Kennewick is located is a major source of agricultural commodities which must be shipped by rail, water, air, or truck to loading and unloading facilities, ports, and processing plants in Kennewick and across the world. Much of the produce and agricultural products are perishable and must be moved quickly to avoid spoilage. A large portion of freight is shipped by rail or by barge to ports located up and down the Snake and Columbia Rivers. The roadways that provide access to these ports are vitally important to the successful movement of freight. Pressure to remove some of the dams on the Snake River, lawsuits to restrict dredging in regional waterways, and an increasing financial burden on companies that operate short rail lines could place ever higher demands on truck routes to move goods and freight in the future. This chapter focuses on four key areas:

- Goals and Policies
- Tonnage Classifications
- Truck Routes
- Rail Crossings
- Priority Projects

### Goals and Policies

The following are goals and policies in the City of Kennewick's 2006 Comprehensive Plan – Horizons that directly relate to the movement of freight and goods.

**GOAL 1:** *Develop a transportation system to serve the planned land use of the urban growth area and is coordinated with other jurisdictions and providers.*

**GOAL 2:** *Develop air, water, rail, pedestrian and bicycle systems to coordinate with the roadway system.*

**GOAL 3:** *Coordinate transportation system improvements and level of service standards with other jurisdictions and providers.*

**GOAL 4:** *Create and maintain a roadway system that promotes function, safety, and aesthetics with minimum adverse environmental impacts.*

#### Policy 1

Support the Benton County-Wide Planning Policies applicable to transportation.

#### Policy 3

Use best management practices for transportation systems.

#### Policy 4

Design multi-modal transportation systems based on regional priorities.

#### Policy 5

Deny land use proposals that would reduce LOS of the adjacent streets and cannot meet concurrency or establish or establish a strategy to follow in the absence of concurrency.

#### Policy 6

Maintain LOS standards & design that are regionally coordinated.

#### Policy 11

Encourage safe aviation facilities that benefit local commerce.

#### Policy 12

Encourage railroad infrastructure to support current & future economic activities.

#### Policy 15

Maintain a minimum of a 10-year projection of the future traffic volumes and arterial street capacity.

#### New Policy

*Identify truck routes that tie inter-modal facilities, ports, and industrial zones to the designated through routes.*



The safe and efficient movement of freight and goods is vital to the economy of the region and to the City of Kennewick.

### Tonnage Classifications

WSDOT compiles a database of roadways classified by the tonnage that is shipped annually<sup>1</sup>. **Exhibit 8-1** lists the tonnage classifications used by WSDOT.

**Exhibit 8-2** illustrates the roadways in the City that are classified for T1, T2, and T3.

### Truck Routes

- Currently, the City has designated the following roadways (**Exhibit 8-3**) as truck routes for through traffic:
- SR 240 from the US 395 to city limits
- Columbia Drive from the SR 240/US 395 interchange to SR 397
- SR 397 from the Columbia River to city limits
- US 395 from I-82 to the Columbia River
- I-82

### SR 240

SR 240 is a major regional roadway that connects US 395 in Kennewick to I-182 in Richland and then continues on to the Hanford Nuclear Reservation. SR 240 allows for movement of goods and freight between ports in the City of Richland and ports in the City of Kennewick and important economic centers such as the Columbia Center Mall. According to the Washington State Department of Transportation, SR 240 carries between 4 million and 10 million tons of freight annually which qualifies it with the second highest statewide tonnage classification of T2. The Benton Franklin Council of Government's Regional Transportation Plan reports that

the average daily highway truck traffic on SR 240 between the years 1994 and 2004 is approximately 2,000 vehicles a day. SR 240 was recently widened between I-182 and the Columbia Center Interchange from four to six lanes and similar expansion between the Columbia Center interchange to US 395 is being considered.

### Columbia Drive and SR 397

Columbia Drive is an important five-lane link between the SR 240/US 395 interchange and SR 397. Columbia Drive serves a vital economic section

of the City and facilitates the movement of freight and goods between port and rail facilities in Kennewick and other regional roadways. Columbia Drive also forms a connection between two major bridges across the Columbia River. WSDOT lists the roadway with a T2 tonnage classification signifying that it carries between 4 million and 10 million tons of freight each year.

### I-82

I-82 is a four lane freeway that extends from I-90 near Ellensburg, Washington, to I-84 near Hermiston, Oregon. I-82 is the only route across the Columbia River into Oregon in all of Southeast Washington.

### Truck Priority Projects

Many of the intersection improvement projects along US 395 are expected to directly or indirectly benefit the movement of freight transportation through the City by reducing delay and increasing capacity for all system users. Specific projects include the addition of turn lanes and signal upgrades at the intersections of 10th Avenue (project 324), Clearwater Avenue (project 329), and Yelm Street (project 328).

In 2008, Benton County completed a new two-lane roadway between I-82 just south of the city limits at the Bofer Canyon Road interchange to SR 397 via Finley Road to the east and south of the City. The new roadway will allow truck traffic coming to and from the port facilities and industrial areas in the east of Kennewick to access I-82 without having to travel through the more congested US 395 corridor. With completion of the CR 397 inter-tie, fewer trucks may use the US 395 corridor thus improving operations and decreasing delay.

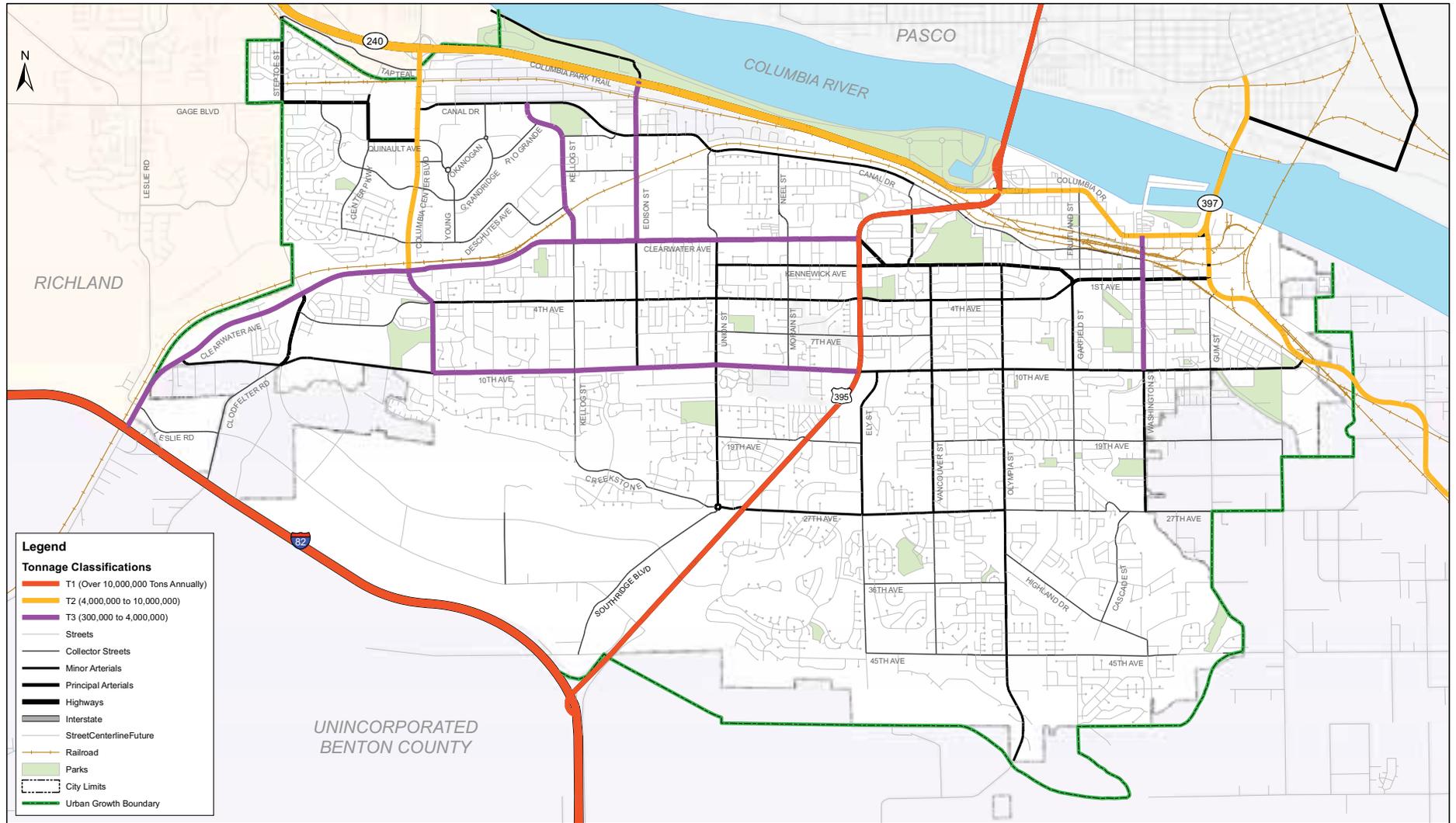
### Other Recommendations

The Benton Franklin Council of Government's Regional Transportation Plan indicates that Clearwater Avenue and Columbia Center Boulevard are designated as T2 freight routes, the State's third highest tonnage classification for roadways, facilitating the movement of between 3 hundred thousand to 4 million tons of freight annually. Furthermore, the

### Exhibit 8-1 Tonnage Classifications

Classification	Tonnage
T1	Over 10,000,000 Annually
T2	4,000,000 to 10,000,000
T3	300,000 to 4,000,000
T4	100,000 to 300,000
T5	Over 20,000 in 60 days

Exhibit 8-2 Tonnage Classifications for Kennebec Roadways



<sup>1</sup> WSDOT. State Freight and Goods Transportation, 2008.

Exhibit 8-3 Truck Routes and Grade Crossings in the City of Kennewick



City of Kennewick's zoning map indicates that a large portion of the City's industrial and commercial land is located around Vista Field to the north of Clearwater Drive and to the east of Columbia Center Boulevard. Future growth in this area will increase truck traffic on Clearwater Avenue and Columbia Drive. To facilitate increased truck travel to and from the industrial and commercial zones in the heart of the City, Clearwater Avenue could be designated as a truck route so that it would receive higher priority for road maintenance and funding. Further studies may be needed.

## Railroad Crossings

Rail transportation is a key component in the movement of freight and goods. Rail lines safely and efficiently carry millions of tons of freight through Kennewick on an annual basis. Without rail access, more trucks would be needed to transport freight which would further increase congestion and cause increased wear to the existing roadway system. There are currently four main sources of rail traffic in the City of Kennewick including BNSF Railway (BNSF), Union Pacific Railroad (UPRR), Tri-City Railway (TCRY) and Amtrak.

BNSF accounts for the majority of rail traffic through the City of Kennewick. The BFCOG's Regional Transportation Plan reports that the BNSF mainline through the City of Kennewick from Spokane to Vancouver facilitates approximately 45 to 55 through freight movements daily with total tonnage exceeding 100 million gross ton-miles per mile per year. The BFCOG also indicates that the number of through movements is high for a single track line and that the line is operating at or near its maximum practical capacity. The BNSF tracks through Kennewick account for all of the at-grade crossings in the City. Amtrak and UPRR passenger service operates on the BNSF line from Vancouver to Spokane with a station in Pasco. The TCRY maintains the rail line from the City of Richland's Port of Benton Manufacturing Mall and Horn Rapids Industrial Complexes to the Union Pacific lines in west Kennewick.

## At Grade Crossings

At grade railroad crossings in the City, illustrated in **Exhibit 8-3** are points of friction between rail traffic and vehicular, pedestrian, and bicycle traffic. Currently there are at least 11 at-grade rail crossings in the Kennewick urban area on active rail lines including crossings of the following roadways:

- Leslie Road west of Clearwater Avenue,
- Kellogg Street south of Deschutes Avenue,
- Edison Street north of Metaline Avenue,
- Edison Street south of Yellowstone Avenue,
- Fruitland and Benton Streets north of Canal Drive,
- Washington Street north of Canal Drive and south of Bruneau Avenue,
- 1st Avenue west of SR 397,
- Gum Street west of SR 397, and
- SR 397 east of Gum Street.
- 3rd Avenue east of SR 397
- 10th Avenue west of SR 397

Delays for vehicular traffic and trucks are increased when trains are crossing the roadway. Buses are required to stop and check for rail traffic at railroad crossings before proceeding even when no warnings are active causing delays for motorists behind them. At grade rail crossings can be hazardous for pedestrians and cyclists because of the uneven nature of the roadway.

## Grade Separated Crossing Project

Grade separated rail crossings are expensive to build and can be difficult to implement in urban areas due to the difficulties presented by separating either the roadway or the rail line from the surrounding land uses; however, grade separated rail crossings allow for the free and frictionless movement of freight and goods with little or no safety problems.



Rail lines safely and efficiently carry millions of tons of freight through Kennewick on an annual basis.

**Exhibit 8-4 Rail Crossing of Edison Street North of Metaline Avenue.**



Two key projects have been identified that will reduce delay and increase safety at rail crossings in the City. Project 320 is a grade separation rail crossing for the rail line that crosses Edison Street north of Metaline Avenue as illustrated in **Exhibit 8-4**. Completion of the rail crossing will eliminate delays for motorists on Edison Street and improve the safety and functionality of pedestrian and bicycle facilities near Kamiakin High School.

A downtown railroad grade separation project is also recommended for the Washington or Fruitland Street crossing and is illustrated in **Exhibit 8-5**.

**Exhibit 8-5 Downtown Railroad Crossing Alternatives.**



## Air & Water Transport

Several non-automobile facilities serve Kennewick's transportation needs. These facilities do not serve passenger transportation, but they do play an important role in Kennewick's economic vitality.

### Aviation

The closest commercial airport to Kennewick is the Tri-Cities Airport, located in the City of Pasco and operated by the Port of Pasco. It is located just north of the junction of US 395 and I-182. To access the terminal, drivers should take the North 20th Avenue exit from US 395 and head north, past Argent Road. The terminal and parking area is at the end of the roadway. Three major airlines operate in this airport, with twenty-eight flights arriving and leaving the Tri-Cities daily.

The City of Kennewick has its own airport, Vista Field, which is owned by the Port of Kennewick. The airport is classified as a Basic Utility State 2 facility and serves single and twin engine propeller aircrafts. Vista Field does not provide passenger air transportation.

The region also has two other airports: the Richland Airport, and the Prosser Airport. Along with the Tri-Cities Airport in Pasco, these three airports are part of the Federal Aviation Administration (FAA) National Plan of Integrated Airport Systems (NPIAS). This inclusion enables these facilities to receive funding through the federal Airport Improvement Program (AIP).

### Endnotes

1. WSDOT. *State Freight and Goods Transportation, 2008*.

### Marine/Water

Kennewick sits along the Columba-Snake River System (CSRS), which extends 465 miles from the Pacific Ocean into North America. Eight dam and lock complexes are in the system, allowing barge lines to transport goods to various destinations along the river. The Port of Kennewick owns several sites along the CSRS, including the Hover site just southeast of the City, where a barge dock is to be constructed.



Kennewick sits along the Columba-Snake River System (CSRS), which extends 465 miles from the Pacific Ocean into North America.



The City of Kennewick has its own airport, Vista Field, which is owned by the Port of Kennewick.



Chapter 9

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# Financial Plan





The Kennewick TSP includes a transportation financing plan that addresses:

- a discussion of existing and potential financing sources to fund the development of each transportation facility and major improvement (which can be described in terms of general guidelines or local policies) an analysis of historic street improvement funding sources;
- an analysis of historic street improvement funding;
- a list and general estimate of the timing for planned transportation facilities and major improvements; and,
- a summarization of planning-level cost estimates for the transportation facilities and major investments identified in the TSP (intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan(s) and allow Kennewick to assess the adequacy of existing and possible alternative funding mechanisms).

This chapter summarizes the financial analysis of the Kennewick TSP. It summarizes the transportation improvement projects, identifies general timing and rough cost estimates of transportation system improvements, and summarizes the existing and potential future financial resources to pay for these improvements, as a general policy guideline.

## Goals, Objectives, and Policies

**GOAL:** *A well-prepared transportation financing plan for the Kennewick urban area that provides adequate funding to meet the City's current and future capital, maintenance, and operations needs.*

### Objective No. 1

*Meet the current and future capital improvement needs of the transportation system for the Kennewick urban area, as outlined in the Kennewick Transportation Systems Plan, through a variety of funding sources.*

#### **Policy 1.1 Motor Vehicle Fuel Tax**

The City shall continue to use an appropriate balance of Motor Vehicle Fuel Tax funds to finance capital improvements to, and maintenance of, the transportation system.

#### **Policy 1.2 Transportation Impact Fees**

The City shall consider the likely impacts of future growth on the Kennewick transportation system and determine if and at what level transportation impact fees should be collected by the City to mitigate impacts placed on area-wide transportation facilities by expected future development.

#### **Policy 1.3 Development Exactions**

The City shall require those responsible for new development to mitigate their development's impacts to the transportation system, as required by the Growth Management Act (Chapter 36.70(A) RCW) and State law (WAC 365-195-510), concurrent with the development of the property.

#### **Policy 1.4 Federal Funding Sources**

The City shall seek federal funding for capital improvements through participation in the Benton-Franklin Metropolitan Planning Organization (MPO) or other designated distribution process, as provided in currently-authorized federal transportation legislation.

#### **Policy 1.5 Bicycle and Pedestrian System Funding**

The City should establish a new allocation and set aside 1.0% of its Motor Vehicle Fuel Tax funds for creation of on-street bicycle and pedestrian facilities.

#### **Policy 1.6 Right-of-way Acquisition Trust Fund**

The City should reserve funds in a trust fund account for acquisition of property for future right-of-way opportunities.

#### **Policy 1.7 Pursuing Federal and State Grants**

The City shall continue to aggressively pursue the awarding of federal, State, and private grants to augment street and non-motorized capital improvements.



The financial plan identifies the strategies which the City will use to fund transportation projects.

## Objective No. 2

*Secure adequate funding to implement a perpetual life street maintenance program which shall sustain a maximum service life for pavement surfaces and other transportation facilities.*

### **Policy 2.1 Primary Maintenance Funding Sources**

Assuming no changes in State funding mechanisms, the primary funding sources for street system maintenance activities shall be the City's allocation of the Motor Vehicle Fuel Tax and Property Tax.

### **Policy 2.2 Seeking Additional Funding Sources for Maintenance**

The City shall seek additional funding sources to meet the long term financial requirements of sustaining a perpetual life street maintenance program.

### **Policy 2.3 Responsibilities for System Maintenance**

The City shall continue to participate in cooperative agreements with other State and local jurisdictions for maintenance and operations activities based on equitable determinations of responsibility and benefit.

## Objective No. 3

*Secure funding to adequately finance the operation of the transportation system that includes advance planning, design engineering, signal operations, system management, illumination, and cleaning activities.*

### **Policy 3.1 Primary Funding Sources for Operations**

Assuming no changes in state funding mechanisms, transportation system operations activities shall be funded primarily from the City's allocation of the Motor Vehicle Fuel Tax. Other funding sources should be pursued to augment the financial requirements of providing adequate future system operations.

### **Policy 3.2 Pursuing Federal and State Grants**

The City shall pursue the awarding of federal, State, and private grants to augment operations activities, especially in the planning and engineering functions.

## Introduction

The completion of the Kennewick TSP financial analysis offers the City a better understanding of its fiscal constraints with regards to short- and long-range transportation revenues. Financial forecast estimates were developed to assist in early TSP project prioritization and planning, but are not intended here to be precise forecasts. Exact funding levels are difficult to predict given the uncertainties of funding sources. The revenue figures used in this chapter are intended to be used for planning purposes; as actual revenues are highly sensitive to local, state, and federal policy decisions; personal choices of residents; and other market forces.

Estimated future revenues have been projected for the Transportation Plan's 2007-2025 planning horizon, in year of expenditure dollars<sup>1</sup>, in three categories:

### **Baseline Projections**

these revenues are considered "most likely," and are conservative estimates based on recent historical revenue trends and the current policy context of each revenue source.

### **Potential Funds**

this category includes additional revenues that may be made available through the current set of funding policies. These revenues are subject to market forces as well as Kennewick's success competing for state and federal grants.

### **Other Possible Funding**

the revenues in this category may be available via policy changes. These are primarily changes in tax policy, some of which may require voter approval.

In reality, transportation funding may comprise any number of combinations of baseline funding, additional "potential" funds, or other funding due to policy changes. The approach here is to demonstrate what actions may be necessary in order to produce different levels of funding. This may include more emphasis on pursuing grants, as well as making policy changes to increase tax revenues.

Many of the funds discussed in this section may be used to fund the maintenance and operations of existing capital facilities or to construct new ones. However, as maintenance and operations costs of existing facilities increase faster than inflation, jurisdictions are confronted with difficult decisions regarding whether to fund these costs, at the expense of building new capital, or to adjust level of service standards.

## Chapter Structure

This chapter addresses estimated capital revenues first, with a detailed description of each revenue source (based on the three categories listed above) and projections for future revenue dollars. Following the capital section is a discussion on projected maintenance and operations revenues and costs. As mentioned, funds listed in the capital section may, in many cases, also be used for maintenance, and those decisions will be made by City staff and Council members.

## Revenue Projections

### Baseline Projections 2007-2025

#### State Grants

Grants are an important funding source for transportation capital projects; however, these funds are distributed in a competitive process making it difficult to determine future grant funding levels. For this analysis, recent historical grant revenue trends were reviewed. Because the current grant-funding climate is shifting, future revenues have been estimated to be lower than recent trends. This is due, in part, to other financial forces.

One of those forces is the passing of Initiative 747<sup>2</sup>. Because jurisdictions have had their property tax revenues capped at a 1.0% increase, which is lower than expected inflation (3.0%), inflation-adjusted revenues are declining each year. This impacts transportation spending in two ways. First, property tax funds that are collected for transportation spending are therefore able to purchase less each year. Second, property tax funds that are non-restricted and are used for other municipal necessities are also declining. Jurisdictions often then must pull from the non-restricted funds that were going

towards transportation projects and put them towards other immediate needs, creating a greater need for grant funding.

In addition, per capita Motor Vehicle Fuel Tax revenue is declining in real terms and able to fund less and less each year. This lower per capita revenue also effects grant distributions, since State grants are largely funded through a portion of the fuel tax revenue not allocated to jurisdictions. As more jurisdictions compete due to their own decreases in funds, securing grant funding becomes even more difficult.

There have, in recent years, been increases in the state fuel tax rate. However, many of these additional funds were earmarked for specific large projects, although there was some allocation to local jurisdictions. The Transportation Partnership Act (TPA) of 2005 provided some additional funds to the Transportation Improvement Board (TIB) and the County Road Administration Board (CRAB), for a total of \$80 million to be disbursed to local jurisdictions as grants over a 16-year period. However, these increases in funds are very small relative to demand, with requests to the TIB overreaching available funds by 800%<sup>3</sup>.

In addition to the overall grant revenue climate, the City of Kennewick has further reason to believe its future grants may be lower than recent historical levels. In the past five years Kennewick has received larger grants than is typical for the City in order to fund specific projects. These large grants are unusual, and grants are not expected to be received at a similar level in the near future.

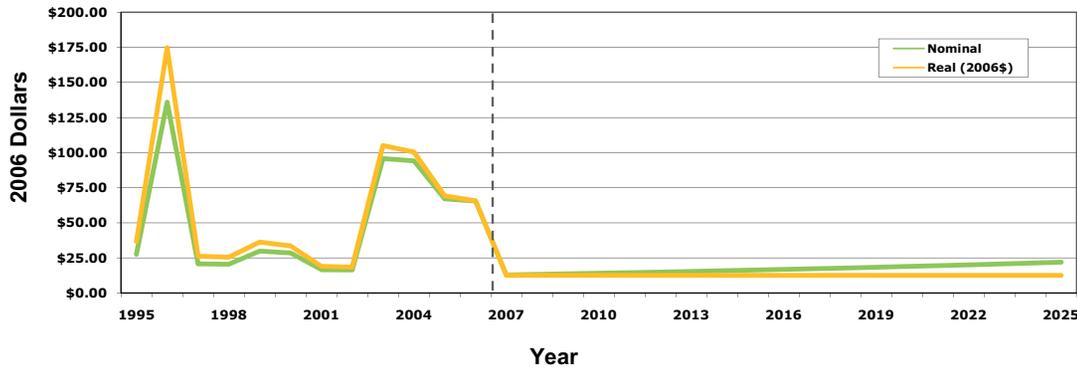
#### Who Pays/Who Benefits

State grants are primarily funded with the state-levied portion of the Motor Vehicle Fuel Tax, which is paid by anyone purchasing fuel for vehicles within the state. Therefore, users of the state roads are the largest funding source for improvements paid by grants, and are the primary beneficiaries as well.

#### Assumptions for Revenue Projections

Because of the increase in competition for grant dollars and the decrease in available State grant funds, along with the City receiving more than their typical share recently, per

### Exhibit 9-1 Estimated Local Per Capita State Grant Funds



Note:  
Nominal = dollars in the year of expenditure,  
Real = inflation adjusted dollars

Source:  
Berk & Associates, City of Kennewick

capita grant revenues in the Baseline projections have been estimated at one quarter of the historical rate for 2007 and increased thereafter at the rate of inflation. Grant revenues are project-specific and therefore tend to have large swings throughout the years. The future revenues in this analysis are projected on a constant trend, which is likely to overstate revenues in some years and understate them in others.

**Exhibit 9-1** shows historical and estimated future per capital State Grant Funds with historical data to the left of the dotted line and future projections to the right. Future projections are noticeably less than recent historical numbers for the reasons discussed above. These revenues are also clearly project-specific as can be seen in the peaks and valleys of the historical data.

#### Federal Grants

As discussed previously, grant funding is difficult to project because it is awarded on a competitive basis. However, recent historical trends and information regarding the context of grant revenue sources can inform the assumptions that are made about available future grant dollars.

Federal transportation grants are funded through the federal portion of the Fuel Excise Tax. The federal gas tax rate has fluctuated between \$0.184 and \$0.183 per gallon since 1994. The majority of these funds are deposited into the Highway Trust Fund and disbursed to the states through the Highway and Mass Transit Accounts.

#### Who Pays/Who Benefits

Similar to State grants, federal grants are primarily funded with the federally-levied portion of the Motor Vehicle Fuel Tax. This tax is paid by all who purchase gas within the United States. Again, users of the roads are therefore the largest funding source for improvements paid by federal grants and the primary beneficiaries. However, the pool of contributors is nationwide, and the grants are distributed nationwide. This means that each year all states contribute to grant revenues, but depending on their grant awards may receive more or less in funding than they contributed.

#### Assumptions for Revenue Projections

As with State Grants, recent historical Federal Grant revenue trends were reviewed for this analysis, and similarly to State Grants, the current grant-funding climate is shifting. Future revenues have therefore been estimated lower than recent trends. According to a presentation by the Receipts Forecasting Division of the Office of Tax Analysis, Department of the U.S. Treasury, gas tax revenues are expected to increase at 2.5% per year for 2006 through 2009, with diesel and other fuels increasing at 1.1% per year. Because this rate is lower than expected inflation (3.0%), these revenues are declining in real, inflation-adjusted terms. It is likely that this trend will continue into the future, and may worsen over time as gas prices and vehicle fuel efficiency are both expected to continue to increase, reducing the per capita gallons of gas purchased per year.

In addition, the City of Kennewick historically received a direct allocation of Federal Gas Tax dollars that was recorded as part of federal grant fund receipts. Governor Gregoire declared that after 2007 these funds must become part of the pool of competitive grant dollars. Therefore, the City of Kennewick can no longer count on these direct allocations, further decreasing their likely annual grant dollars.

**Exhibit 9-2** shows historical and estimated future per capita Federal Grant Funds. Future projections are less than recent historical numbers for the reasons discussed above. These revenues are also clearly largely project-specific as can be seen in the peaks and valleys of the historical data.

### State Motor Vehicle Fuel Tax

Counties and cities receive a portion of the State Motor Vehicle Fuel Tax (MVF) based on a reimbursement formula. These funds decreased on a per capita basis for the City of Kennewick at an average annual rate of approximately 0.7% from 1995-2006, but have held more steady in recent years. Revenues are therefore not keeping pace with inflation and are declining in inflation-adjusted terms.

#### Who Pays/Who Benefits

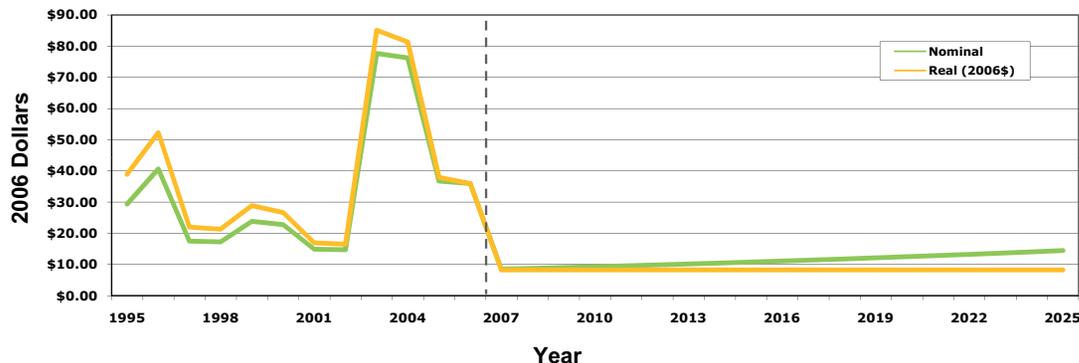
This portion of the Motor Vehicle Fuel Tax is reimbursed to cities based on a formula. This provides an even closer nexus between those who pay the tax, and those who benefit from the improvements paid for with those revenues. Because the taxes are redistributed based on a standard formula, they should more closely match the dollars collected within that jurisdiction than those distributed as grants. These funds are collected from people who purchase gas for vehicles, and are presumably users of the road system, and are used to pay for improvements that benefit those users. Also, generally the more one uses the road system, the more they will pay in gas taxes.

#### Assumptions for Revenue Projections

After 2008, no increase in the State gas tax rate is expected again in the near future. Because of this, and because nominal per capita dollars have remained fairly steady in recent years, the per capita revenue was held constant into the future in nominal terms. Jurisdictions may see some growth in total revenues due to increases in population, but per capita revenues are likely to remain constant, and when adjusted for inflation, will continue to decrease over time.

**Exhibit 9-3** illustrates historical per capita State MVF Tax revenues received by the City of Kennewick, and the estimated future per capita revenues through 2025. This chart illustrates the real decline in inflation-adjusted revenues, evident in the orange line, while nominal per capita dollars, shown in the green line, remain constant.

**Exhibit 9-2 Estimated Local Per Capita Federal Grant Funds**



### Transportation Fees

Transportation Fees are paid to the City by developers for specific transportation improvement projects necessary due to the new development. The funds are collected through the State Environmental Policy Act (SEPA) process, which requires review of the impacts of proposed projects on many environmental elements, including transportation. Most of these funds are used for the installation of traffic signals or roundabouts to help accommodate an increase in traffic from a large development.

Note:  
Nominal = dollars in the year of expenditure,  
Real = inflation adjusted dollars

Source:  
Berk & Associates, City of Kennewick

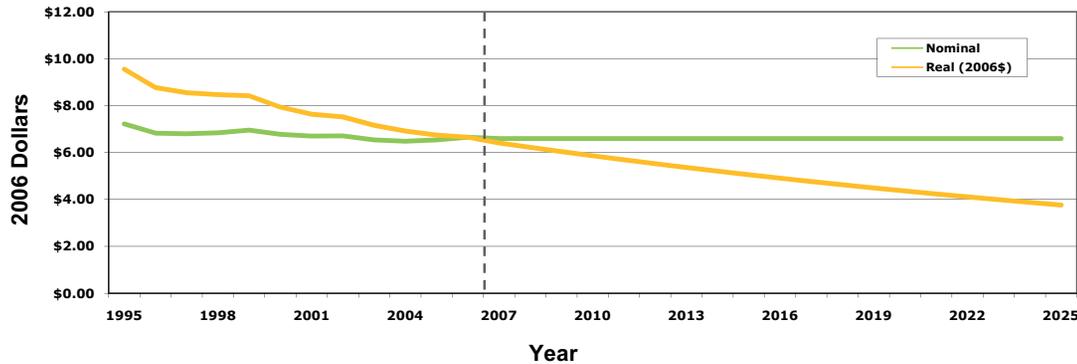
#### Who Pays/Who Benefits

Although it is developers who initially pay for the transportation improvement projects, some portion of these costs is likely passed on to the home buyers and commercial tenants of the developed property. All users of the road system benefit, since these specific improvement projects are necessary to retain the current level of service after the development has been built. Also, the developers and property owners in particular benefit by being able to develop in the area.

#### Assumptions for Revenue Projections

Because of the project-specific nature of these funds, it is difficult to estimate future revenues. The City of Kennewick has created estimates for their finance planning for the years 2007–2011, which show expected revenues to be low

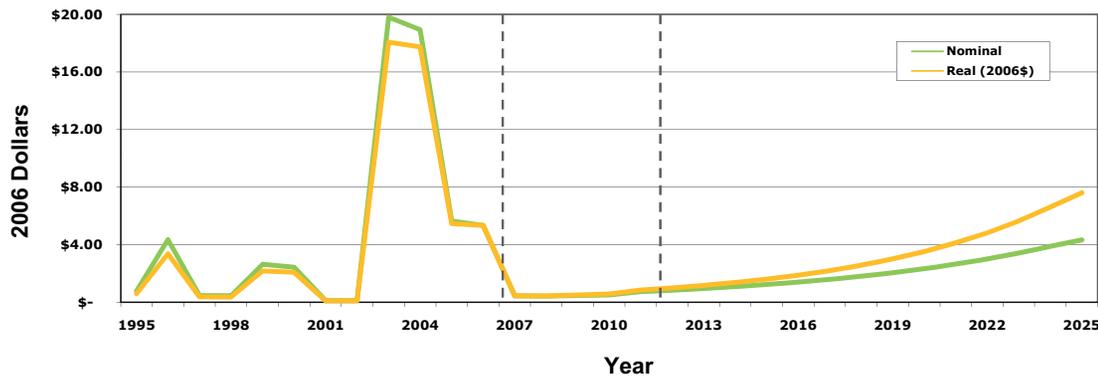
### Exhibit 9-3 Kennewick Portion of Estimated Per Capita State Motor Vehicle Fuel Funds



Note:  
Nominal = dollars in the year of expenditure,  
Real = inflation adjusted dollars

Source:  
Berk & Associates, City of Kennewick

### Exhibit 9-4 Estimated Per Capita Transportation Fee Funds



Note:  
Nominal = dollars in the year of expenditure  
Real = inflation adjusted dollars

Source:  
Berk & Associates, City of Kennewick

compared to historical, but increasing at an average annual rate of nearly 19.0%. Estimated revenues for 2012–2025 are based on the City’s projections, continuing at the same annual rate of increase. **Exhibit 9-4** shows the per capita historical and estimated future transportation fee revenues. The section to the far left displays actual historical revenues. The middle section, shown between the two dashed lines, displays the City of Kennewick’s estimates for revenue from 2007–2011, and the section to the far right illustrates the estimated future revenues between 2012 and 2025. The project-specific nature of these funds is clear in the large peaks and valleys of the historical revenues.

It is important to note that if the City adopts an impact fee ordinance, as discussed later in the report, that fee would supplant the SEPA process and these Transportation Fees would no longer be collected. These projections are therefore relevant only in the case that the City chooses not to adopt an impact fee.

#### Sales Tax

The City of Kennewick has in place a 0.5% sales tax voted on by residents to be used for infrastructure improvements. The sales tax has primarily funded street construction in the past, but the revenue source has grown over time, and the uses of the funds have broadened as the community has grown and need for other capital improvements has become more diversified. The tax is now also being used to pay for annual electrical costs for street lighting, debt service payments on a new police facility and the Tri-Cities Coliseum events center, economic development activities and other infrastructure costs.

#### Who Pays/Who Benefits

All City residents and visitors to the City, except Oregon residents, who make retail purchases within the city limits contribute to this revenue stream. The beneficiaries of the transportation improvements are those who use the City roads.

*Assumptions for Revenue Projections*

Annual per capita sales tax revenue used to fund transportation infrastructure has been increasing at an average annual rate of 1.6% since 1995. In recent years however (2002–2007) the rate has been fairly steady, increasing only at 0.3% per year. This slow growth is largely due to the build up of new retail centers outside of Kennewick’s city limits in the bordering towns of Richland and Pasco, which are pulling retail spending outside of the City. As new retail is built from time to time outside of the City, it creates a cycle in the City’s sales tax revenue. The revenue decreases from the new retail outside of the area, and slowly builds back up over time and with inflation. Then, something new is built again, restarting the cycle.

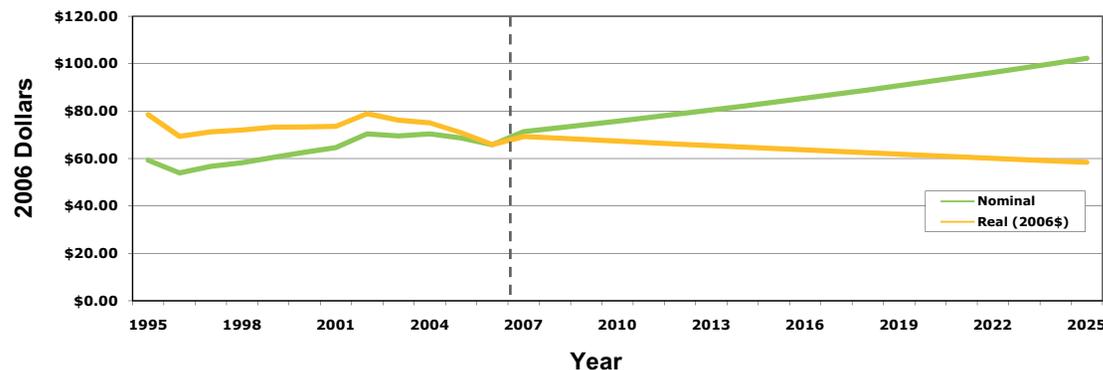
For this analysis we analyzed historical data and used the average annual increase over a period of time that appeared to capture a full cycle of the City’s retail sales tax revenue. The beginning year chosen was 1996, at the trough of the most recent cycle, and the end year was 2006, as per capita revenues peaked and began to fall again. The average annual increase over this period of time was 2.0%. This was continued into the future, projecting an increase in nominal dollars, but a slow decline in inflation-adjusted dollars.

**Exhibit 9-5** illustrates the historical per capita sales tax revenues that were spent on transportation infrastructure, and the estimated future revenues available for these expenditures. The cyclical nature of the historical revenues can be seen to the left of the dotted line, and the expected decrease in real dollars is clear in the yellow line to the right.

**Total Estimated Baseline Funds**

**Exhibit 9-6** shows the estimated Baseline funds available for transportation capital projects for the three summary time periods of 2007–2013, 2014–2019, and 2020–2025 in year of expenditure dollars. Total expected revenues have been summed, from which estimated debt service, estimated capital funds to be spent on maintenance, and estimated transfers to other departments, have been removed. The total at the bottom of the table shows the remaining estimated usable funds. For a detailed annual table, see **Appendix D**.

**Exhibit 9-5 Estimated Per Capita Sales Tax Revenue for Transportation Infrastructure**



Note:  
Nominal = dollars in the year of expenditure,  
Real = inflation adjusted dollars

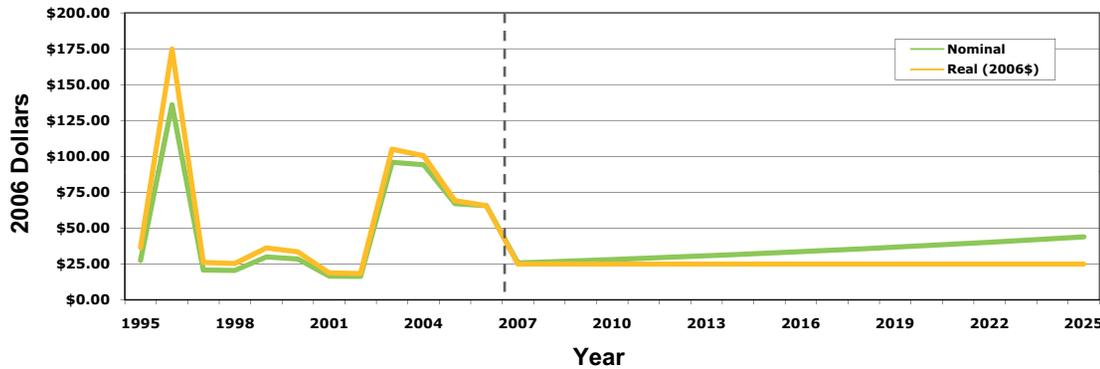
Source:  
Berk & Associates, City of Kennewick

**Exhibit 9-6 Total Estimated Baseline Funds**

BASELINE REVENUES	TOTAL
<b>Estimated Available Funds</b>	
Federal Grants	\$ 16,453,000
State Grants	\$ 24,999,000
Motor Vehicle Fuel Tax	\$ 9,539,000
Transportation Fees	\$ 4,085,000
Sales Tax (optional)	\$ 118,865,000
<b>Total Revenues</b>	<b>\$ 173,941,000</b>
Estimated Debt Service (-)	\$ 21,825,000
Estimated CIP Funds for Maintaining Capital (-)	\$ 27,039,000
Estimated Transfers Out (-)	\$ 33,241,000
<b>Total Available Funds</b>	<b>\$ 91,836,000</b>

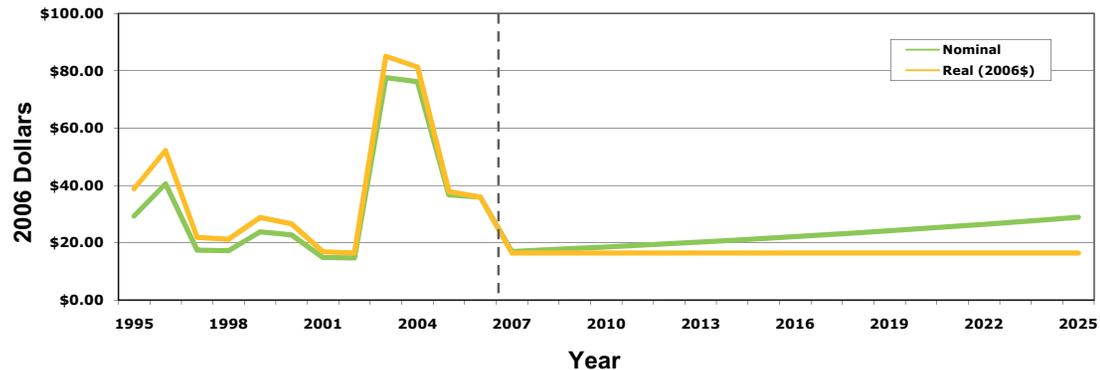
Source: Berk & Associates

### Exhibit 9-7 Estimated Potential Local Per Capita State Grant Funds



Note: Nominal = dollars in the year of expenditure, Real = inflation adjusted dollars  
 Source: Berk & Associates, City of Kennebec

### Exhibit 9-8 Estimated Potential Local Per Capita Federal Grant Funds



Note: Nominal = dollars in the year of expenditure, Real = inflation adjusted dollars  
 Source: Berk & Associates, City of Kennebec

### Exhibit 9-9 Total Estimated Additional Potential Funds

POTENTIAL REVENUES	TOTAL
<b>Estimated Available Funds</b>	
Federal Grants	\$ 16,454,000
State Grants	\$ 24,999,000
<b>Total Revenues</b>	<b>\$ 41,453,000</b>

Source: Berk & Associates

### Potential Funds

Potential Funds include additional grant revenues that may be available to the City, but will depend on market forces and Kennebec’s success competing for State and federal grants.

#### State and Federal Grants

As discussed previously, grants in the Baseline projections have been estimated to be lower than recent historical trends. But future grant revenues may be more “optimistic” than estimated under the Baseline assumption.

#### Who Pays/Who Benefits

See previous discussion under State and federal grants in the Baseline Projections section.

#### Assumptions for Revenue Projections

For estimating Potential Funds, it is assumed that the City will receive a higher level of grants than estimated in the Baseline projections. For this scenario we have assumed that the average annual per capita level will be approximately half of what it has been in recent years, and will increase at the rate of inflation (assumed to be 3.0%). Average annual real per capita grant revenues will therefore remain constant year to year. Much of the potential for these funds is out of the control of the City. There are, however, actions that it can take to help increase the chances of receiving more grant revenues.

Exhibits 9-7 and 9-8 show the per capita “Potential Fund” projections for State and Federal Grants. The historical information is the same as that shown in figures in the Baseline estimates section, but the future estimated funds have been increased to illustrate a more “optimistic” view of potentially available revenues.

#### Total Potential Funds

The projected revenue estimates for Potential Funds are shown in Exhibit 9-9 for the three summary time periods. These additional grants double the estimated grant funds available in the Baseline scenario, and could result in an increase of nearly \$41.5 million dollars in transportation funding for the City.

## Other Possible Funding

Other Possible Funding includes additional revenue that may apply to transportation capital spending, but would require changes to current policy, and in some cases voter approval. These are primarily changes in tax policy.

### **Transportation Impact Fees/Developer Fees**

Impact fees are a financing tool that requires new development to pay a portion of the costs associated with infrastructure improvements that are “reasonably related” to that development. The Washington State Growth Management Act (GMA) allows agencies to develop and implement a transportation impact fee program to help fund some of the costs of transportation facilities needed to accommodate growth. State law (Chapter 82.02 RCW) requires that impact fees are:

- Related to improvements to serve new developments and not existing deficiencies.
- Assessed proportional to the impacts of new developments.
- Allocated for improvements that reasonably benefit new development.
- Spent on facilities identified in the Capital Facilities Plan (CFP).

Legally, financing for improvements that will serve the new development must provide a balance between impact fees and other sources of public funds, and the fees must be structured in a manner that ensures that funds collected do not exceed a proportionate share of the costs of improvements reasonably related to new development.

The State statutes enacting the impact fee laws leave room for interpretation regarding the issue of improvements being “reasonably related to the new development.” However, a recent Washington State Supreme Court decision (*The City of Olympia v. John Drebeck et al.*) supported the idea that an individual development need not be tied to a specific improvement project. Rather, a jurisdiction may establish a “reasonable service area” and, “local governments [may] calculate the fees by tying the particular development to the service area’s improvements as a whole, not to particular system improvements within the service area.”

The TSP was the basis for the calculation of the impact fees.

The TSP identified existing and forecasted transportation deficiencies based on 20-year traffic volumes. The forecasts were prepared using the recently constructed City of Kennewick travel demand model which was built from the regional model maintained by the Benton-Franklin Council of Governments (BFCOG). Each of the improvement projects identified in the Transportation Systems Plan was reviewed to see if it met the above GMA requirements. If the improvement met the above requirements, an additional assessment was made to estimate the portion of the improvement that was needed to resolve an existing deficiency, if any.

### *Who Pays/Who Benefits*

The who pays/who benefits discussion for impact fees and developer fees is similar to that for transportation fees discussed in the Baseline Projections section. The fees are paid by the developer in both cases, but are likely passed on in some portion to the purchaser of the property. Who benefits from these improvement projects may be debated. Some may say it is the users of the road system, however, these specific improvement projects are likely necessary to retain the current level of service after the development has been built. Therefore, one might argue that it is more correctly the developers or property owners who benefit by being able to develop in the area and have users of their development and other users of the roads not be negatively impacted. Or, the City as a whole may be the beneficiary since it has the use of the development with no negative impact (and possible improvement) to the level of service in that area.

*Assumptions for Revenue Projections*

Of the total costs of the projects identified in this plan, \$41,011,000 is eligible to be recovered through an impact fee system, should the City decide to use this funding mechanism. An additional \$19,310,000 in specific development-related projects are expected to be recovered through other development mitigation fees for a total of \$60,321,000 (in 2007 dollars) that could be generated. The Overlay option adds a surcharge to the Southridge area on top of the city-wide impact fee and covers the full costs related to development, for a total of \$60,321,000.

It is assumed that the full \$60,321,000 in project costs will be recovered through development fees of some type. This results in a projected total escalated value of \$94,859,690.

As stated previously, if the City adopts an impact fee program it would be in lieu of the current Transportation Fees that are collected through the SEPA process. Therefore, these estimated Transportation Fee revenues have been removed from the total available funds at the end of this section.

*Additional Overlay/Surcharge Fee*

This option creates a city-wide impact fee, but includes a surcharge to those land uses in the Southridge subarea. All

projects shown to primarily benefit the Southridge area are not included in the city-wide impact fee project cost totals, but rather included in a surcharge fee.

The city-wide impact fee is assessed to all land uses within the City, while land uses in the Southridge subarea are assessed an additional surcharge to pay for the infrastructure needed to support new growth exclusively within the Southridge area. The full cost of the Southridge area improvements identified in the 20-year project list are included in the surcharge amount, including improvement projects not eligible for impact fee funding. These improvements include collector roadways that enhance circulation and access, but are not shown to be needed by 2025 based on the City’s existing level of service standards. The surcharge spreads the cost of all transportation capital improvements within Southridge to the expected growth over the next 20 years.

The cost for new vehicle trips generated city-wide are shown in **Exhibit 9-10**, excluding the Southridge surcharge.

**Local Motor Vehicle Fuel Tax**

Established in 1998, the Local Motor Vehicle Fuel Tax allows Washington State counties to levy a local fuel tax, in addition to the state tax, upon approval from the county’s legislative body and a majority of voters. This tax may be levied up to a rate equal to 10.0% of the State Fuel Tax rate and may be used for transportation purposes as defined in RCW 82.80.070. This includes maintenance, preservation, and expansion of existing roads and streets, new transportation construction and reconstruction, other transportation improvements, implementation and improvement of public transportation and high-capacity transit programs, and planning, design, and acquisition of right of way for the aforementioned purposes. This tax would need to be established by Benton County in order for Kennewick to receive these revenues.

**Exhibit 9-10 Costs by Unit of Development (Citywide Fee)**

Land Use	ITE Land Use Code	Unit <sup>1</sup>	Net New Trip Rate <sup>2</sup>	Cost per Unit of Development (2007 \$'s)
<i>Cost Per New PM Peak Hour Vehicle Trip</i>				\$1,943
Single-Family	210	Dwelling Unit	1.01	\$1,962
Multi-Family	220	Dwelling Unit	0.62	\$1,205
Office	710	1,000 sf GFA	1.49	\$2,895
Light Industrial	110	1,000 sf GFA	0.98	\$1,904
Specialty Retail	814	1,000 sf GLA	1.79	\$3,475
Big Box Retail	813	1,000 sf GFA	2.79	\$5,414
Fast Food Restaurant <sup>3</sup>	934	1,000 sf GFA	17.32	\$33,653

1. GFA = Gross Floor Area; GLA = Gross Leasable Area  
 2. Retail trip rate adjusted for pass-by trips.  
 3. With Drive-Through

Source: The Transpo Group, Inc.

### Who Pays/Who Benefits

Anyone purchasing gas within Benton County would pay this tax. This provides the closest nexus for gas tax between those who pay the tax, and those who benefit from the improvements, since the taxes are collected and spent within the County. These funds are collected from people who purchase gas for vehicles, and are presumably users of the road system, and are used to pay for improvements that benefit those users.

### Assumptions for Revenue Projections

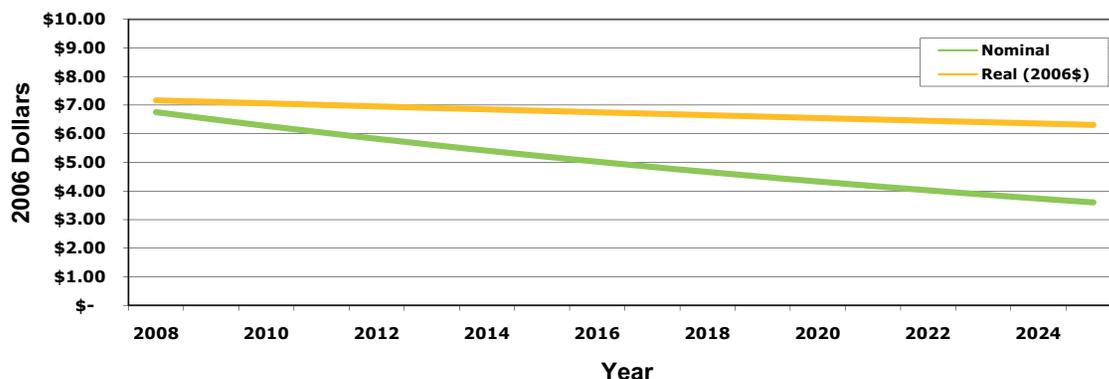
For these projections a county Local Motor Vehicle Fuel Tax at 5.0% of the Washington State Fuel Tax rate was assumed. The State tax rate is \$0.36 for 2007 and \$0.375 for 2008 and is expected to remain at the 2008 rate indefinitely. It is further assumed that the new County tax would be established in 2008, allowing time for the Council and voters to give their approval (and assuming they do so). Five percent of the 2008 State tax rate corresponds to a Benton County fuel tax rate of \$0.019 per gallon.

**Exhibit 9-11** below shows the share of projected future Local MVF Tax revenues estimated to go to the City of Kennewick for 2008–2025, should the Benton County Council and voters approve it. As with the per capita State MVF Tax revenues, because the nominal per capita rate is not increased for inflation, the adjusted numbers show real per capita revenues declining over time.

### Utility Taxes

Utility taxes are a form of Business and Occupation tax levied on utilities, and a revenue source that is currently used by the City of Kennewick. These revenues contribute to a municipality’s General Fund and may be used for many City expenses, including capital improvements. Washington State sets the maximum rate of tax on electrical, natural gas, steam energy, and telephone businesses at 6.0%, unless a higher rate is approved by voters. There is no tax rate limit on other utilities such as water, sewer, and garbage services. Currently, Kennewick has an 8.50% tax on natural gas, electricity, telephone, and cellular phone and pager service. To increase

### Exhibit 9-11 Estimated City of Kennewick Per Capita Local Motor Vehicle Fuel Tax Funds



this rate would require voter approval. For water, sewer, cable, and garbage services, Kennewick currently charges a 7.00% tax. This rate could be increased without voter approval to generate further revenues.

*Note:*  
Nominal = dollars in the year of expenditure,  
Real = inflation adjusted dollars

*Source:*  
Berk & Associates, City of Kennewick

Additional potential revenues from utility taxes to fund transportation improvements have not been estimated. The City may, however, consider this as a revenue source in the future.

### Who Pays/Who Benefits

Utility taxes are paid by the companies that provide the utility service, but are likely passed on to the customers of those companies. Therefore, these funds are primarily paid by City residents. If these revenues were to be used for transportation improvements, all those who use the City road system would benefit.

### Other Agency Funding

The City may be able to partner with WSDOT on regional projects that also improve the State’s transportation system. Funding for these types of projects would be a joint venture between the City and the State.

### Total Other Possible Funds

The total estimated Other Possible Funds for the local

### Exhibit 9-12 Estimated Total Other Possible Fund

OTHER POSSIBLE FUNDS	TOTAL
<b>Estimated Available Funds</b>	
Local Motor Vehicle Fuel Tax	\$ 9,252,000
Impact Fees / Developer Fees	\$ 94,860,000
Utility Tax	\$ 0
<b>Total Revenues</b>	<b>\$ 104,112,000</b>
No Transp Fees collected due to impact fee program (-)	\$ 4,055,000
<b>Total Available Funds</b>	<b>\$ 100,057,000</b>

Source: Berk & Associates

agencies are summarized in **Exhibit 9-12**. These revenues will require changes in current policies, and do not include potential additional funds from new utility taxes. Note that impact fees/developer fees are shown in year of expenditure dollars, and are therefore inflated from the 2007 dollars discussed in the impact fee/developer fees section of this report.

Notably, this chapter is not intended as the singular plan of finance and does not require the City to commit to a specific funding plan. Instead, it is meant to provide information so that the City's policy makers are able to make informed decisions regarding the balance between building necessary transportation infrastructure and the opportunities and efforts required in raising the revenue needed to pay for it.

The City will need to make policy decisions regarding what it wishes to implement in terms of new funding options, and what is politically feasible. These decisions will have significant impacts on the revenues that can be expected in the future and the level of transportation capital improvements that can be funded. Decisions will need to be made regarding the balance of expected revenue and the timing of projects, including what projects get pushed beyond the study period to a future plan, or are foregone entirely.

### Total Possible Revenues

**Exhibit 9-13** below shows the total potential funding available from all possible funding sources discussed in this section of the report.

#### Summary

The financial analysis performed for the Kennewick TSP is aimed at providing the City with information to help answer two main questions:

1. What transportation improvement projects can the City reasonably afford to build in the next 20 years?
2. What would the City have to do to augment available revenue for transportation infrastructure in order to increase the number of projects it is able to build?

### Maintenance & Operations

When considering future transportation capital investments it is equally important to estimate what additional resources it might take to maintain the newly created infrastructure. Certainly it is not wise to invest in new capital projects if the resources do not exist to maintain them properly, or if in doing so, it requires pulling revenues from other municipal priorities.

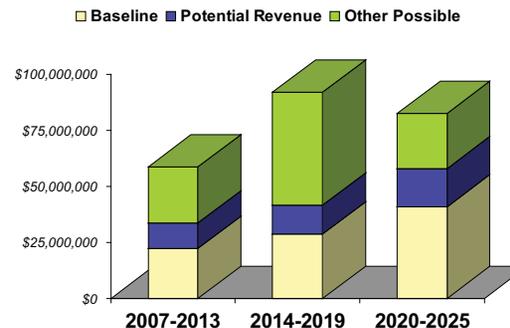
Transportation maintenance spending is directly related to level of service standards, which are typically set at the discretion of the jurisdiction. Therefore, jurisdictions must continually make decisions regarding available funds, desired level of service, and other financial priorities.

In an attempt to help the City of Kennewick in the decisions that must be made regarding level of investment in transportation capital, Maintenance and Operations (M & O) trends were analyzed. In doing so, historical M & O revenue and expenditure streams were studied and projected based on current knowledge about how these expenses and revenues are likely to change in the near future.

### Exhibit 9-13 Estimated Total Possible Funds

SUMMARY OF ALL POSSIBLE REVENUES	TOTAL
<b>Estimated Available Funds</b>	
Baseline	\$ 91,836,000
Potential Revenues	\$ 41,453,000
Other Possible Funds	\$ 100,057,000
<b>Total Available Funds</b>	<b>\$ 233,346,000</b>

Source: Berk & Associates



## Maintenance Revenues

### Motor Vehicle Fuel Tax

Gas tax funds are a large portion of the revenues that support the City of Kennewick’s transportation maintenance program. Beginning In 2007, the City received a 0.25% increase in these revenues from the State. The additional gas tax funds received by the City are being used for maintenance and the expected increase in revenues can be seen in **Exhibit 9-14**.

### Assumptions for Revenue Projections

Historically, per capita gas tax funds used for maintenance have been fairly steady in nominal terms, declining at an average annual rate of less than 1.0% since 1995. They have been declining at a real, inflation-adjusted average annual rate of 3.3%. The City’s projections for increased revenue have been used for 2007 and 2008, and the per capita revenue has been held constant in nominal numbers for future years. Per capita real revenues are therefore expected to continue to decline in the future at an average annual rate of 2.7%.

**Exhibit 9-14** shows the estimated per capita Motor Vehicle Fuel Tax funds to be used for transportation maintenance.

### Property Tax

Property tax is deposited into the City’s General Fund, and is available for any municipal purpose, including transportation spending. For the City of Kennewick, a portion of property tax funds are transferred from the General Fund for transportation maintenance as needed. They are used to make up for any shortfall in needed funding, to a reasonable limit.

### Assumptions for Revenue Projections

Although in the last five years the City has been increasing the contribution of property tax revenue to transportation maintenance, the larger trend over the last 12 years has been one of declining contribution at an average annual rate of 2.6% in nominal dollars. This equals an inflation-adjusted decline in annual property tax revenue contributions of 5.1%.

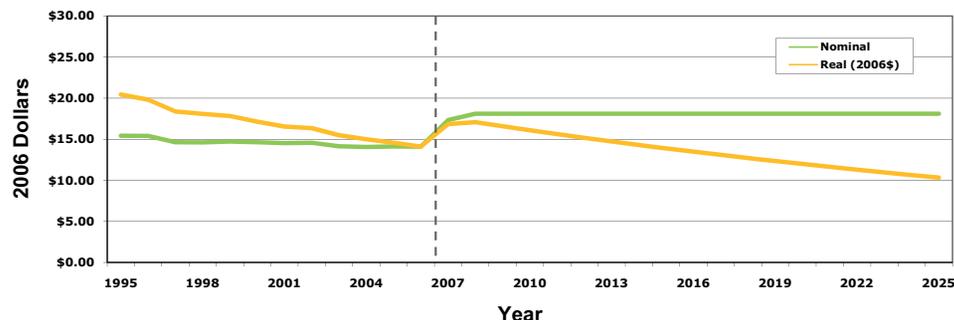
Since the passage of Initiative 747<sup>4</sup> in 2001, Property Tax increases are restricted to 1.0% of the previous year’s

revenues. In inflation-adjusted terms, revenues from Property Tax are actually declining, since the 1.0% allowed increase does not keep pace with inflation (which hovers around 3.0%), or population growth. Because of this, all Washington State jurisdictions that collect property tax are seeing declining purchasing power in the property tax revenues.

Due to this expected continuing decline in real property tax revenues, the historical trend of declining property tax contributions to transportation maintenance was projected into the future.

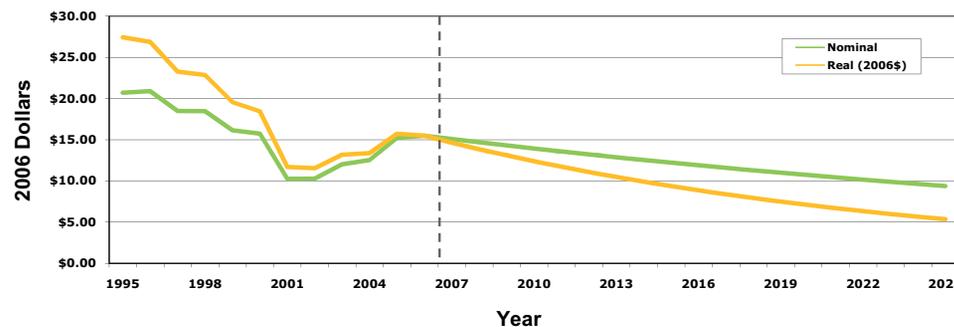
**Exhibit 9-15** shows the estimated per capita property tax funds to be used for transportation maintenance.

**Exhibit 9-14 Estimated Per Capita Motor Vehicle Fuel Tax Funds for Transportation Maintenance**



Note: Nominal = dollars in the year of expenditure, Real = inflation adjusted dollars Source: Berk & Associates, City of Kennewick

**Exhibit 9-15 Estimated Per Capita Property Tax Funds to be Used for Transportation Maintenance**



Note: Nominal = dollars in the year of expenditure, Real = inflation adjusted dollars Source: Berk & Associates, City of Kennewick

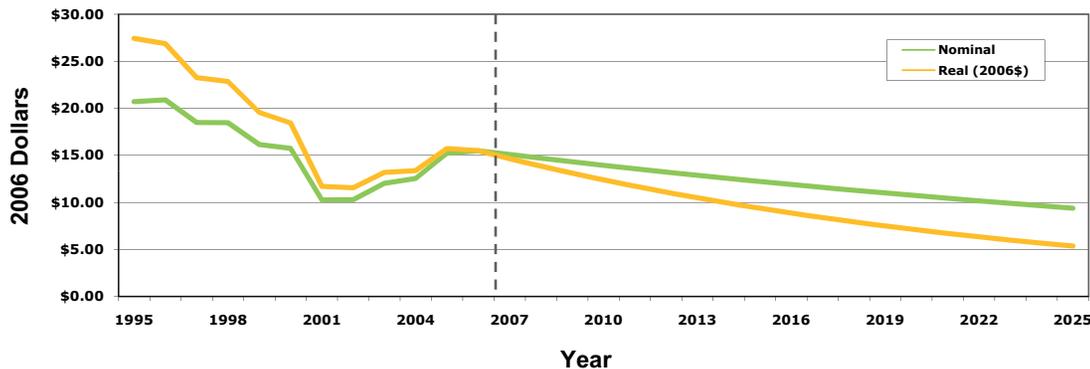
### Maintenance Costs

According to the WSDOT Highway Construction Cost Index, road construction costs have been increasing at an average annual rate of 5.0% over the past 17 years. Costs have been increasing more rapidly in the recent past, at an average annual rate of 6.2% over the past ten years, and 12.8% since 2002, due to economic shifts in the market for road construction materials

**Exhibit 9-16** shows the annual percentage change in highway construction costs since 1990, taken from the WSDOT Highway Construction Cost Index. The volatility of costs from year to year is clear in the hills and valleys of the chart.

To estimate cost projections for maintenance over the next 20 years, this analysis assumes increases of 6.2% annually, the same average rate seen historically over the past ten years. Although recent cost increases have been higher, they are not likely to be sustained at this level. Over time, cost increases years, this analysis assumes increases of 6.2% annually, the same average rate seen historically over the past ten years. Although recent cost increases have been higher, they are not

**Exhibit 9-16 Annual Percentage Change in Highway Construction Costs, 1990-2007**



Note:  
 Nominal = dollars in the year of expenditure,  
 Real = inflation adjusted dollars

Source:  
 Berk & Associates, City of Kennewick

likely to be sustained at this level. Over time, cost increases will level out, likely resulting in an average annual rate lower than the conservative estimate of 6.2% used for this analysis. This assumption in cost inflation has a significant effect on the resulting cost projections for maintenance and the overall funding need. Any marked difference in the inflation assumption is likely to make a noteworthy change in estimated future costs. To estimate cost projections for maintenance over the next 20 In order to project transportation maintenance costs in the future, current costs were analyzed on a cost-per-lane-mile basis. This allows for the consideration of additional lane miles in the future, either through the construction of new roads, or the annexing of existing roads, each of which have their own average maintenance cost per lane mile.

### Assumptions for Cost Projections

As discussed, road construction costs have been increasing at an average annual rate of 6.2% over the past ten years. To estimate cost projections over the next 20 years, this analysis assumes a continuation of this 6.2% average annual rate.

Also included in this analysis are assumptions regarding the annexation of unincorporated county roads and the creation of new roads. Annexation is estimated to occur at an average rate of three lane miles per year, while new roads are expected to be constructed at an average rate of 11 to 12 lane miles per year. County roads are expected to cost approximately three times the cost of current roads to maintain once they are annexed because they will be acquired at lower quality standards than the standard levels set by the City and will need improvements. New roads are expected to cost approximately 75% of new roads since they are new and should need minimal upkeep for a period of time.

The same funding gap is shown in **Exhibit 9-18** for the three summary time periods.

Because revenues used for road maintenance are staying the same, or decreasing over time, on a nominal basis, and expenditures are expected to increase at an annual rate of 6.2%, a funding gap quickly appears and worsens over time. This is compounded by the fact that the City plans on

increasing the number of lane miles within the city limits through construction and annexation.

**Exhibit 9-17** shows the severity of the road maintenance funding gap. The orange line illustrates the expected costs increasing over time and the green line illustrating nominal revenues remaining relatively constant.

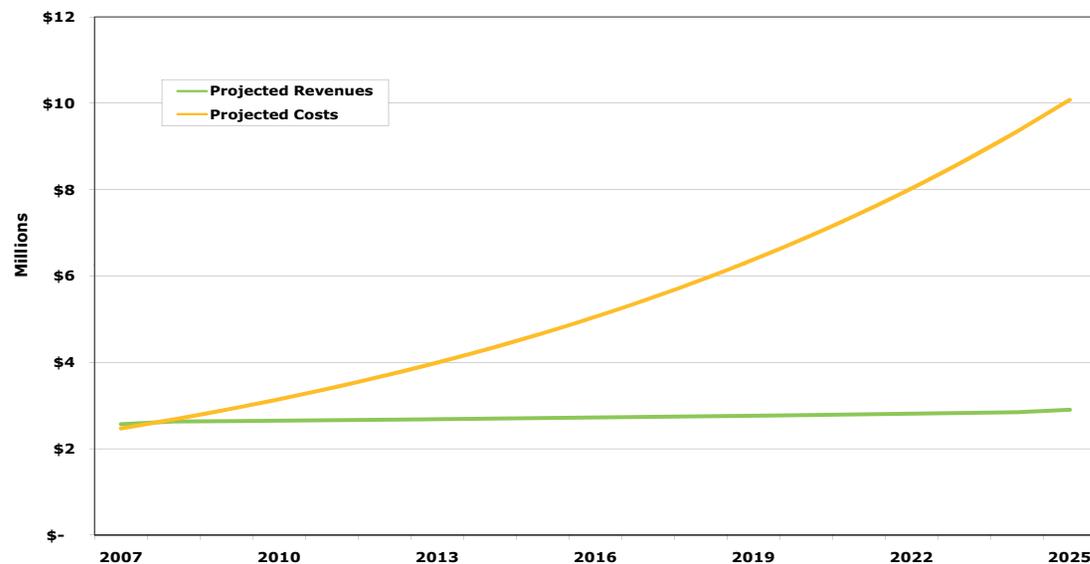
## Financial Feasibility of Transportation Capital Improvements

As noted in **Exhibit 9-19**, the TSP identifies slightly more than \$115 million in capital improvement projects over the next twenty years. These projects include new major streets, major street widening or upgrades, intersection, bicycle and pedestrian system improvements. Key findings of the TSP financial plan evaluation have major significance:

Per capita Motor Vehicle Fuel Tax revenue is declining in real terms;

- State and Federal grants for capital improvements are becoming much more competitive; and,
- Local fees and sales tax, combined with estimated Fuel Tax revenue and grants are estimated to total only about \$67.2 million by 2025 (measured in 2007 dollars), approximately 45% of the TSP capital improvement needs.

### Exhibit 9-17 Estimated Future Road Maintenance Revenues and Costs



Source: Berk & Associates

### Exhibit 9-18 Estimated Future Road Maintenance Funding

SUMMARY OF MAINTENANCE FUNDING	TOTAL
<b>Estimated Available Funds</b>	
Motor Vehicle Fuel Tax	\$ 26,135,000
Property Tax	\$ 17,157,000
<b>Total Revenues</b>	<b>\$ 43,292,000</b>
Transfers in from Capital Fund	\$ 8,550,000
<b>Total Available Funds</b>	<b>\$ 51,842,000</b>
<b>Expected Maintenance Costs</b>	<b>\$ 104,539,000</b>
<b>Maintenance Gap ( ) / Excess Capacity</b>	<b>\$ ( 52,697,000)</b>

Source: Berk & Associates

**Exhibit 9-19** summarizes the Kennewick TSP capital improvement project costs (in 2007 dollars), and baseline revenue estimate, supplemented by a set of possible new funding options for the time period 2007-2025.

By policy direction the TSP recommends that Kennewick consider the following funding options: (a) a city-wide transportation impact fee to help fund city-wide growth-related capital improvements, (b) a greater contribution from WSDOT to improve mobility and safety along US 395, and (c) some form of latecomer fee for the Southridge area to fund additional capital improvements specific to the Southridge subarea.

### Exhibit 9-19 Kennewick TSP Financial Plan Summary (2007 dollars)

TSP Capital Improvement Project Costs	Million 2007 \$
New Roadways	\$ 25.5*
Street Widening / Reconstruction	\$ 41.2*
Intersections	\$ 13.6*
Major Sidewalks	\$ 3.5
Bicycle Route / Shared-Use Paths	\$ 7.0
Southridge Internal Needs	\$ 24.3*
<b>Total</b>	<b>\$ 115.1</b>
20-Year Revenue Estimate	Million 2007 \$
Baseline Revenue	\$ 67.2
Impact Fees	\$ 23.6
Southridge Impact Fee Surcharge or Latecomer Fee Impact Fee	\$ 24.3
<b>Total</b>	<b>\$ 115.1</b>

*\*Total project costs by category do not match exactly with Exhibit 4-10 because some projects have been identified to primarily benefit Southridge development needs. Those projects are shown to total \$24.3 million and include all types of projects.*

## Financial Feasibility of Transportation Maintenance

The solution that will work best for the City to address the transportation maintenance financing gap will have to be determined by those in the position to make related policy decisions, and may be some combination of the options discussed below.

- Lower Maintenance Standards. The City may choose to reduce the level of service to which they maintain the road system. This will thereby reduce the per-lane-mile required maintenance funding.
- Dedicate more General Funds to transportation maintenance. More funds may be transferred from the City's General Funds (including property tax) to the Street Fund for transportation maintenance. This clearly involves a tradeoff, reducing funds available for other City expenses.
- Construct fewer new projects. The new transportation capital projects will increase the necessary maintenance costs by adding lane miles within the City. Similarly, annexing new area to the City will require the City to pay for maintenance on the added roads. Reducing or postponing new projects and annexations is one way to reduce maintenance costs

## Endnotes

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1. *Year of expenditure dollars represent the actual nominal dollar amount projected in each year including expected inflation. For example, if current revenues are \$1,000 per year and are expected to increase at an estimated rate of inflation of 3.5% annually, the following year's projections would be \$1,035 in year of expenditure dollars.*
2. *Although Initiative 747 was recently determined unconstitutional by the State Supreme Court, a similar law was immediately passed by the State Legislature, keeping the cap on property taxes effectively the same.*
3. *The Transportation Partnership Act of 2005, Saving Lives, Moving People, Delivering Goods. Passed by the Washington state Legislature, April 25, 2005.*
4. *Although Initiative 747 was recently determined unconstitutional by the State Supreme Court, a similar law was immediately passed by the State Legislature, keeping the cap on property taxes effectively the same.*



Chapter 10

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# Implementation





## Need for Implementation

Once developed, a plan is just a collection of words and good intentions. It has no effectiveness unless its goals, objectives, and policies are adopted as a foundation for decision-making. Its recommended projects and programs will not be undertaken unless designed and financed. In essence, a plan is only as good as the actions taken to implement it.

**GOAL:** *To implement the adopted goals, objectives, policies, implementation strategies, projects, and programs of the Kennewick Transportation Systems Plan.*

### Objective No. 1

*To utilize the Kennewick Transportation Systems Plan as the legal basis and foundation for decision-making in transportation-related issues.*

#### Policy 1.1

The City of Kennewick shall use the Kennewick Transportation Systems Plan as the legal basis and policy foundation for actions by decision-makers, advisory bodies, staff, and citizens in transportation issues. The goals, objectives, policies, implementation strategies, principles, maps, and recommended projects shall be considered in all decision-making processes that impact or are impacted by the transportation system.

#### Policy 1.2

The City of Kennewick shall use the Kennewick Transportation Systems Plan to:

- Describe the classification or function of all streets within the Kennewick planning area. Policies found in the Plan shall be used to develop connective local street circulation patterns.
- Require new development to provide adequate accessibility, as defined by the **Kennewick Municipal Code**, for all travel modes within a development and in coordination with existing and other proposed development. Street design standards in the **Kennewick Municipal Code** are to be used to secure adequate public street and sidewalk facilities.
- Identify measures and programs to be undertaken to enhance mobility for all travel modes.
- Form the basis from which identified projects are placed into the Six-Year Transportation Improvement Program and into regional and state transportation improvement programs (TIP).

- Establish funding and project construction priorities when preparing funding scenarios and measures.

### Objective No. 2

*To utilize the Kennewick Transportation Systems Plan as the basis for prioritizing projects in the Six-Year Transportation Improvement Program.*

#### Policy 2.1

The City of Kennewick shall derive, in part, the projects in the Six-Year Transportation Improvement Program from the projects and needs identified in the Kennewick Transportation Systems Plan. Transportation projects contained in the Six-Year Transportation Improvement Program shall be consistent with the goals, objectives, and policies, and needs identified in the Plan.

#### Policy 2.2

The City of Kennewick shall include those projects and programs in the Kennewick Transportation Systems Plan that are of regional or statewide significance, or require the use of state or federal funding, in the MPO/RTPO Transportation Improvement Program (MPO/RTPO TIP).

### Objective No. 3

*To utilize the Kennewick Transportation Systems Plan in the consideration of pertinent permit reviews and land use actions.*

#### Policy 3.1

The City of Kennewick shall consider and apply the goals, objectives, policies, projects, implementation strategies, and maps contained in Kennewick Transportation Systems Plan in the review of land use actions and development applications.

### Objective No. 4

*To establish a process to regularly review, confirm and update the Kennewick Transportation Systems Plan.*

#### Policy 4.1

The City of Kennewick shall hold annual workshops to review the planning and status of the projects and programs contained in the Kennewick Transportation Systems Plan.

**Policy 4.2**

Every five years the City of Kennewick shall conduct a reassessment of the planning assumptions, analysis methods, and findings and recommendations. The Kennewick Transportation Systems Plan shall be updated, accordingly, based on the study reassessment.

**Legal Basis of the Kennewick Transportation Systems Plan**

Implementing the Kennewick Transportation Systems Plan begins with the establishment of its legal standing through adoption. The Kennewick Transportation Systems Plan will be adopted by City Council as an element of the Kennewick Comprehensive Plan. The Kennewick Transportation Systems Plan is considered a detailed component of the Comprehensive Plan; and, therefore, has the same weight, or legal standing, as the Comprehensive Plan. The goals, objectives, policies, maps and projects contained in both the Comprehensive Plan and Transportation Systems Plan are legally adopted and binding.

When new studies or neighborhood plans develop recommendations that would improve upon the Kennewick Transportation Systems Plan, the Plan can be amended to reflect those changes. Amendments to the Plan require a public hearing and vote of approval by City Council.

**Policy Foundation for Decision-Making**

The Kennewick Transportation Systems Plan provides the policy foundation for City decision-makers, Staff, advisory bodies, and citizens. The goals, objectives, and policies of the Plan are to be considered in all decision-making processes that impact, or are impacted by, the transportation system. Specifically, the Plan is to guide decisions involving:

**The Function and Location of Streets**

The Plan describes, through the use of maps and descriptions the classification, or function, the public streets within the Kennewick planning area. It also describes the approximate alignment of planned arterial and collector streets.

**Land Use Development**

The Plan contains policies and recommendations that require new development to provide adequate accessibility for all travel modes within the development, and system coordination with existing and planned development. The Plan also guides the development of new street system elements as development occurs.

**Transportation Programs**

This Plan identifies measures and programs to be undertaken to increase mobility for all travel modes.

**Capital Investments**

The project and program recommendations contained within the Plan form the basis from which projects are placed into the **Six-Year Transportation Improvement Program (TIP), the Metropolitan Planning Organization (MPO) and Regional Transportation Planning Organization (RTPO) Transportation Improvement Program (MPO/RTPO TIP),** The State of Washington STIP, and annual City budget.

**Funding Priorities**

The projects and programs recommended in the Plan are prioritized based on need and general timeframe. These priorities should be considered when preparing funding scenarios and measures. It is understood that priorities may change over time, and other factors need to be considered when preparing funding and construction priorities.

**Relationship with the Kennewick Six-Year Transportation Improvement Program**

The City of Kennewick Six-Year Transportation Improvement Program (TIP) is a six-year implementation plan for the City's capital construction and operations projects. The major transportation-related projects contained in future TIP's will be derived, in part, from the projects and needs identified in the Kennewick Transportation Systems Plan. All transportation projects contained in the TIP, whether major or minor, must be consistent with the goals, objectives, policies, and needs identified in the Kennewick Transportation Systems Plan.

### **Relationship with Land Use Actions and Development Review**

In accordance with requirements contained in the Kennewick Municipal Code, the adopted goals, objectives, policies, projects and maps of the Kennewick Transportation Systems Plan must be considered and applied in the review and approval of land use actions and development applications.

### **Component of Regional Transportation Plans**

The Kennewick Transportation Systems Plan has been developed in relation to the MPO/RTPO TIP for Benton, Franklin and Walla Walla Counties (adopted in October 2008) which makes recommendations for local plan development for the City of Kennewick and other jurisdictions in the region. The MPO/RTPO TIP is updated and adopted by the Benton-Franklin Council of Governments (BFCOG).

### **MPO/RTPO Transportation Improvement Program**

Just as the Kennewick TIP is the primary implementing document for the Kennewick Transportation Systems Plan, the MPO/RTPO TIP is the implementing mechanism for the Metropolitan Transportation Plan. The MPO/RTPO TIP contains all projects of regional significance from each of the region's jurisdictions. Projects requiring the use of state or federal funds must also be included in the MPO/RTPO TIP. Project priorities and the assignment of federal

funds are reviewed by the regional Technical and Policy Advisory Committees of the Regional Transportation Planning Organization (RTPO), which consists of elected officials from each participating local jurisdiction, and the Washington State Department of Transportation. The MPO/RTPO TIP was adopted October 2008 for the 2009-2015 timeframe. Some of the projects and programs identified in the Kennewick Transportation Systems Plan will constitute a significant portion of the MPO/RTPO TIP.

### **Amending the Kennewick Transportation Systems Plan**

With the detailed elements of the 20-year plan and the broader principles contained in the long-range strategy, the Kennewick TSP is designed to be relevant for the 20 year planning horizon. However, like all plans, circumstances change, assumptions become modified, and new priorities are developed. As a living document, the Kennewick TSP has been prepared for an efficient amendment process to address ongoing transportation issues.

One of the plan's objectives is to establish a process to regularly update the Kennewick Transportation Systems Plan. Policies for the regular review and update of the plan, including annual technical policy workshops and full plan reassessments (every five years), are provided in the plan to help achieve this objective.

