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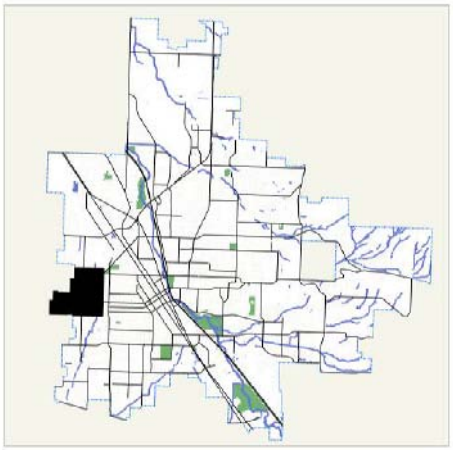
West Main Transit Oriented District Plan

September 12, 2007

Prepared by
The Otak Team

For the City of
Medford

Index



Introduction

The West Main Transit Oriented District Plan puts into action the adopted City of Medford 2003 Transportation System Plan (TSP), which designates the subject site as a Transit Oriented District (TOD) as part of the Regional Transportation Plan's (RTP) effort to reduce vehicle miles traveled. The West Main TOD plan integrates local land use and transportation planning to encourage the use of alternative modes of travel including walking, bicycling, and transit.

Project Description

The West Main TOD Plan carries out refinements to Medford's TSP and the Rogue Valley Metropolitan Planning Organization's 2005-2030 Rogue Valley RTP. The West Main TOD is one of four transit-oriented districts identified in the City's TSP. The City of Medford will fulfill requirements of the Oregon Transportation Planning Rule (TPR) by making changes to the Medford Comprehensive Plan and the Medford Land Development Code to implement the TOD plan.

As part of the TSP refinement, implementation of four identified TOD sites (Southeast, Downtown, West Main, and Delta Waters) will play a prominent role in developing the supporting and complementary transportation system. The TOD sites will also serve as anchors and destination points for recommended transit routes (identified in the TSP and RTP) that will help make transit a more viable transportation choice, resulting in increased transit trips on the system.

Study Area

The West Main TOD encompasses approximately 450 acres located around the intersections of West McAndrews Road, North Ross Lane, and West Main Street, and extending to the Urban Growth Boundary to the west. The current land uses within the TOD include auto-oriented, low-density commercial, low-density residential, and some high density residential development and considerable underdeveloped and vacant land. The West Main TOD contains some of Medford's older, less expensive residential development. The zoning includes County General Commercial, City Heavy Commercial, low-density residential (County SR-2.5 and City SFR-4, SFR-6, and SFR-10), and a small amount of high density residential (City MFR-20 and 30).

Purpose, Principles, and Objectives

Plan Objectives

The West Main TOD Plan has the following specific objectives aimed at creating more pedestrian and transit-friendly public and private development:

- Through a neighborhood-oriented mixed-use development plan, reduce future reliance on the automobile in the vicinity and enhance opportunities for the use of bicycles, walking, and transit.
- Develop Comprehensive Plan and Land Development Code amendments that will implement a special area plan that directs future private and public development in the TOD that gives priority to pedestrian, bicycle, and transit movements over vehicular movements.
- Evaluate the market feasibility of the TOD concept in the study area.
- Analyze traffic impacts related to the Comprehensive Plan and Land Development Code amendments, with identification of any required transportation improvements and transportation system plan changes.

Medford TSP Principles

The West Main TOD plan is intended to help meet the specific TOD performance measures that have been adopted as part of the Medford TSP, which included showing measurable benefits within the TOD in terms of:

- Transit, bike, and pedestrian mode share increases;
- Increase in the number of dwellings within a quarter mile of transit service;
- Increase in the percentage of collector & arterial streets with bike lanes and sidewalks; and
- Increase in the percentage of mixed-use development that includes both housing and jobs.

West Main TOD Planning Principles

In accordance with the Medford TSP principles, the West Main TOD Plan supports the following planning principles:

- Improve pedestrian and bicycle connections between transit stops and housing areas, retail centers, employers, schools and parks.
- Provide a mix of housing types with the highest densities closest to transit stops. Housing types include single family detached structures (4 to 6

units per acre), duplexes, quad-plexes and townhouses (6-15 units per acre), and three-story condominiums or apartments, with retail on the street level (up to 60 units per acre).

- Create transit nodes having sidewalks and landscape areas and mixed-use development (e.g., housing over retail and office over retail). Transit and pedestrian facilities should be provided at key nodes of pedestrian and business activity. Facilities should include bus shelters with transit schedules, pedestrian benches, lighting, trash receptacles, and cross walks.
- A well connected local street network is necessary throughout the TOD area to provide safe and convenient pedestrian access from housing to commercial and recreational destinations.
- Vehicle traffic calming devices should be constructed near these key transit nodes. These may include landscaping, medians, raised or textured crosswalks, signage, pedestrian illumination, on-street parking, curb extensions, and roundabouts.

In order to implement the West Main TOD Plan, the City of Medford will need to adopt proper zoning and design standards. These standards will help to ensure the quality of the future private and public investment. Amendments to the Medford TSP will need to include the preferred conceptual local street network plan and street classification hierarchy that provide a safe and effective multi-modal (road, bicycle pedestrian) transportation network. New streets, and bicycle, pedestrian and transit facilities will need to be identified and prioritized with consideration of construction costs and funding strategies. Paying for such facilities is always a challenge that will require public funding, private funding and/or creative public/private financing mechanisms.

Area Context and Setting

Background

The West Main TOD is in transition from a rural residential and auto-oriented commercial area to an urban mixed-use community. The area boasts several positive aspects and amenities:

- Rural interface with excellent views and access to the Siskiyou Mountains and Rogue River National Forest.
- Proximity to downtown Medford and Jacksonville.
- Existing diversity of housing and commercial retail stores within the West Main TOD.

- Historic community and parks resources, including the oldest operating schools and neighborhoods in Medford.
- Cultural diversity, with a concentration of Spanish speaking residents and businesses that cater to and attract diverse ethnic groups from throughout the greater Rogue Valley region.
- Relatively low rents and home prices, which is appealing to young families, lower and middle income households, and senior citizens.
- A good supply of vacant sites and redevelopment opportunities, including a few large parcels in excess of 5 acres in size.
- Demonstrated recent private investment in commercial and housing developments and public investment in street improvements.
- Good existing primary street access and transit service serving the area.
- Abutting sites tentatively identified as Urban Reserve Areas.

West Main TOD. This section is organized into the following sections:

- Land Use, including existing development, ownership patterns, and buildable lands;
- Transportation and Public Facilities; and
- Parks and Natural Areas.

Land Use

Opportunities

- The West Main TOD is unique in that it has both rural and urban land use patterns. The TOD is situated within one mile of downtown Medford and is located on the western fringe of the Medford Urban Growth Boundary.
- Adjacent farmland to the west is considered to be an attraction to local residents.
- The adjacent McLoughlin Neighborhood includes several historically significant structures and is a well established neighborhood.
- There is a concentration of Spanish speaking residents and business owners in the West Main TOD, which provides an important cultural distinction and makes the area a destination throughout the greater Rogue Valley region.
- Two elementary schools, Jackson and Oak Grove schools, and the Santo Community Center provide important neighborhood identities and focus points.

- Existing land use includes a mix of commercial retail, industrial and single and multiple family residential dwellings.
- There is a mix of successful commercial development along West Main Street and North Ross Lane, with relatively low vacancy rates. The existing Albertson's commercial center represents a modern 1990's community retail center.
- Housing includes a mix of single family detached, multi-tenant apartments, and four-plex dwellings.
- There are many vacant and potentially redevelopable residential and commercial parcels within the TOD.
- Some of those vacant parcels are currently being planned for mixed-use development.
- There have been several recent development projects successfully built over the past five years in West Main TOD.
- Housing vacancy rates in the area are low for existing homes, but relatively high for new housing developments given a recent buildup in inventory.
- Existing homes are priced from $168,000 and above, so the area is still considered to be attractive to first time home owners, and real estate investors.
- The aging baby boomers and influx of older residents are considered to be driving factors in the emerging housing market in Medford.
- The existing businesses in the TOD have a diverse customer base. The Dairy Queen and other small businesses report that about 80-90% of their business is from patrons that reside within 2 miles. Specialty restaurants, such as Rosario's only receive about 25% of business from local residents (within 2 mile radius) and 75% from elsewhere in Jackson County.
- El Gallo, a Mexican retail/grocery business, recently added 600 square feet to its store, which is a sign that business is improving, and that some property owners remain committed and optimistic to the area.
- The Blackbird department store is an important local business generator, and the Blackbird statue is an interesting community feature and landmark.
- West Main Street commercial businesses are reported to be a shopping destination for many transit dependent citizens that arrive by bus.

Land Use

Constraints

- A negative market image is considered to be the West Main TOD's greatest existing constraint. Some adjacent established neighborhoods in West Medford are occupied by relatively lower income residents, with pockets of high rates of crime. This has resulted in lower achievable lease rates and sales prices for commercial and residential developments.
- The existing diverse mix of auto-oriented businesses and industrial uses along West Main Street and North Ross Lane create a heterogeneous land use pattern that is not supportive of transit-oriented development.
- The current parcel configuration developed at non-urban intensity when the area was under County jurisdiction generally includes long and narrow parcels which are difficult to in-fill to urban densities. The shape of parcels, strip commercial nature, and lack of street connections makes it difficult to create a transit-oriented development pattern with building entrances oriented to streets and sidewalks.
- A mix of city and county land use codes applies to the area, since some of the area is not yet annexed to the City, and some of the annexed areas still retain County zoning. Varying development standards leads to undesirable land uses scattered throughout the West Main TOD.

Transportation and Public Facilities

Opportunities

- The West Main TOD has good primary transportation access via West Main Street, West McAndrews Road, North Ross Lane, and Oak Grove Road. The existing street network is depicted in Figure XX.
- Rogue Valley Transportation District (RVTD) provides scheduled transit service to the West Main TOD on bus routes 2 and 30, and dial-a-ride transit service throughout the entire community. Existing transit routes are shown in Figure XX.
- Until a recent fare hike resulted in a downturn in ridership, RVTD experienced a steady increase in bus ridership levels on its fixed route system as indicated in Graph XX. Annual transit ridership on RVTD fixed routes exceeded 1.3 million in Fiscal Year 2005/2006, almost double the ridership experienced five years earlier. Average monthly ridership has expanded about 11 percent annually over the past five years—reaching 109,700 monthly riders during Fiscal Year 2005/2006.
- Portions of West Main Street and North Ross Lane are soon to be reconstructed by Jackson County, with added center turn lanes, bicycle lanes, sidewalks, and a new traffic signal at the West McAndrews Road /North Ross Lane intersection.

- West Main Street reconstruction project limits extend roughly from Western Avenue to Oak Grove Road.
- North Ross Lane reconstruction project limits include improvements from West Main Street to the West McAndrews Road intersection. This includes a new traffic signal, adding left turn lanes and a through lane from West McAndrews to North Ross Lane and intersection realignment at North Ross/West McAndrews.
- There is a well established local street grid in the McLoughlin Neighborhood east of Western Avenue with block spacing of 300 to 500 feet. Extending some of these local streets west to North Ross Lane (north of West Main) or Lozier Lane (south of West Main) would improve connections between already established residential locations and the West Main TOD. Please refer to Figure XX for a map of the conceptual local street and trail connections.
- The City of Medford, Medford Water Commission, and Rogue Valley Sewer Service District can serve the West Main TOD with adequate public sewer and water services as areas are annexed.

Transportation and Public Facilities

Constraints

- A lack of sidewalks and bicycle lanes in the West Main TOD along West Main Street, North Ross Lane, Lozier Lane, West McAndrews Road, and Oak Grove Road, and lack of sidewalks on most local streets reduces pedestrian accessibility and impairs safety.
- No bus shelters or related transit amenities exist in the West Main TOD. The existing bus routes do not provide service near the North Ross Lane/West McAndrews Road intersection, which is the "heart" of the West Main TOD.
- RVTD is struggling to maintain current service levels given existing funding constraints. RVTD will likely be pursuing a stable revenue source in order to replace recently discontinued service and to expand service levels.
- Business owners along West Main Street cited issues regarding congestion delays at the West Main/North Ross intersection and the North Ross/West McAndrews intersection. These issues will be partially addressed by the planned County street improvements.
- The Medford Transportation System Plan (TSP) indicates there to be considerable school bus delays on Lozier Lane and North Ross Avenue, both in the morning and in the afternoon during the school year.

- The average daily traffic volumes along West Main Street, North Ross Lane and West McAndrews Road are the highest among the streets within the TOD. According to the Medford TSP, the traffic volumes range from 15,000 to 25,000 vehicles per day, which is high enough to generate potential barriers to pedestrians and noise for adjacent households.
- Current traffic signal spacing standards are focused on optimizing vehicle movements, which may be at the expense of pedestrian movements within the West Main TOD.
- Planned County improvements to Main Street and North Ross Lane will not meet city standards, particularly by excluding planter strips and street illumination.
- Inadequate storm water drainage combined with a lack of sidewalks impairs pedestrian access within the West Main TOD. As part of County street improvements, storm drains will be added along West Main Street and North Ross Lane and these will help address this constraint.
- Only a few north-south and east-west local streets connect into North Ross Lane and West Main Street within the West Main TOD. This results in longer walking and bicycle trips, thereby increasing the reliance on automobiles for local trips.
- Few on- or off-street public parking areas exist within the West Main TOD. Additional on-street parking will be provided with the construction of additional local streets. Relying mainly on private off-street parking lots leads to potential conflicts during peak business hours and hampers the potential for "park and ride" transit access.
- The planned Jackson County street improvements are being designed with curb-tight five foot sidewalks and no landscaping or pedestrian lighting. While this will be an improvement over existing conditions, it will not be adequate for creating a transit-oriented pedestrian environment. Future development will be required to dedicate the necessary right-of-way and reconstruct the improvements to meet City standards, including a planter strip or wider sidewalk with tree wells.
- Additional bicycle and pedestrian improvements included in the Medford Leisure Services Plan Update include: a proposed pedestrian/bicycle trail that connects Oak Grove School with S. Stage Road, southwest of the West Main TOD.

Parks and Natural Areas

Opportunities

- The West Main TOD has a relatively flat topography. Development is not restricted by major hillsides or slopes, but may be restricted by drainageways and wetlands.
- Elk Creek bisects the West Main TOD. Elk Creek feeds into one "locally significant wetland" located on Sunset Avenue that is identified on the National Wetland Inventory and the City's adopted Local Wetland Inventory. This wetland, if enhanced with native vegetation and proper landscape design, could become an attractive natural area that is valuable for open space, nature interpretation and an area for wildlife.
- Additional wetlands are located on the west side of North Ross Lane and north of West Main Street. Please refer to Figure XX for a map of existing wetlands, creeks, and parks.
- The area west of the West Main TOD is primarily characterized by orchards. This area is outside the Medford UGB and is designated by Jackson County as Exclusive Farm Use.
- Bluffs, such as John's Peak and Hanley Hill are visible a few miles west, and the Siskiyou and Klamath Mountains, including Mt. Isabelle, are visible further west in the Rogue River National Forest. The best view corridors are located on West Main Street and the western edge of the West Main TOD.
- The West Main TOD includes Oak Grove School, Jackson School & Park, the Santo Community Center, and Lewis Street Park.
- The Jackson School Park contains softball fields, tennis courts, outdoor pool, recreation center, basketball court, playground, restroom, parking area, and a storage building.
- Medford Parks & Recreation Department is currently completing the construction of Lewis Park.
- The Santo Community Center provides classrooms and meeting space for various community activities and events. A new gymnasium is proposed.
- A new regional YMCA with adjacent ball fields is slated for construction near the intersection of North Ross Lane and Rossanley Drive (OR 238), just north of the West Main TOD.
- The City of Medford has plans to improve or enhance existing parks and trails in the West Main TOD. Improvement plans, which are documented in the 2005 Medford Leisure Services Plan Update include:
  - Lewis Park – master plan has been completed and park construction is to occur in 2007.
  - Oak Grove School Park— examine the feasibility of developing a school park in conjunction with Oak Grove Elementary, and then acquire and develop a site near the school.

- Jackson School Park—expand parking, renovate restroom, increase pool maintenance, resurface one tennis court, consider converting one tennis court to a skate park or pavilion, overlay and widen asphalt paths, irrigation system, replace concession stand, relocate Youth Activity Center to Santo Community Center, and add drainage in the grass areas.

Parks and Natural Areas

Constraints

- During peak storm events, Elk Creek and other small drainageways within the West Main TOD contribute to storm water drainage problems and flooding.
- Several wetlands have been identified which may constrain site development.
- Vegetation within the West Main TOD is limited to a few scattered unimproved lots and park land at Jackson School Park, Lewis Park, and Oak Grove School. The lack of street trees, absence of planter strips, and limited landscaping, creates a seemingly harsh urban environment.
- According to the Medford Leisure Services Plan Update, existing constraints at the Jackson School Park include outdated restroom, lack of pathways, poor condition of the pool, need for tennis court resurfacing, inadequate storm water drainage, lack of lighting, and the need for a ball field concession area and bleachers.
- There is a lack of pedestrian and bicycle connections between neighborhood parks and planned development in the West Main TOD.
- Farming practices in the orchards west of the West Main TOD can lead to conflicts between rural activities and urban residents when practices include spraying or use of heavy farm equipment. The City has agricultural land use buffering requirements.

Market Assessment

The intent of the market assessment is to provide an understanding of the underlying market and economic conditions that will influence successful implementation of plans for the West Main TOD.

Key Findings

This study focused on market and economic trends in the area within and surrounding the West Main TOD and their impact to housing and commercial development.

The area under study, called the Primary Market Area, includes portions of Medford where households and businesses would "cross-shop" homes or commercial space if they were to consider locating in the West Main TOD. The Primary Market Area is influenced by trends occurring within the broader Medford Urban Growth Boundary, which is termed the Secondary Market Area for this study. Please refer to Appendix O.

Two population forecasts are used in this market assessment: (1) the Baseline Scenario, which assumes no extraordinary investments are made to improve the aesthetic appeal of the area; and (2) the TOD Scenario, which assumes significant public investments are made in the West Main TOD.

Based on the Baseline Scenario, it is estimated that the West Main TOD will grow by approximately 1,770 new housing units between 2007 and 2026[1]. This growth will be driven by residents seeking relatively affordable housing as land and home values in East Medford continue to increase.

Infrastructure, rezoning[2], and aesthetic improvements, which are under consideration in the West Main TOD planning process, would, if implemented, increase the demand for homes by making the area more attractive. Anticipating these changes, a demand analysis for the TOD Scenario results in a demand for approximately 2,490 new housing units between 2007 and 2026.

Over time, increases in housing demand in the Primary Market Area are expected to increase land and home values, supporting the development of more diverse and denser housing types. In fact, current applications to the City demonstrate this is already occurring. Public improvements in the Primary Market Area will only bolster this trend. Despite the increasing land and home values in the Primary Market Area, however, homes in this area are expected to remain affordable compared to downtown and East Medford.

[1] This housing estimate represents the average between the high and low forecasts found in Appendix L.
[2] Under the TOD Scenario, residential zoning is increased to accommodate higher-density development.

A commercial forecast based on the Baseline Scenario, indicates forecasted population growth will support approximately 82,800 square feet of new retail and service office space within the Primary Market Area between 2007 and 2026. This analysis assumes:

- Large format retail stores (e.g., big box stores) or thematic retail centers (e.g., lifestyle centers) will no locate in the Primary Trade Area, since those types of developments tend to locate closer to state or interstate highways with excellent access and visibility; and
- Because of its proximity to several regional shopping centers, Primary Market Area residents make a significant share of their purchases outside of the area (called *retail leakage*).

Public improvements within the West Main TOD that enhance the area's market image, pedestrian access, safety, and urban environment (TOD Scenario) will increase the demand for commercial space up to approximately 231,800 square feet. This higher demand would be driven by the higher population forecast and the ability of local retailers to capture more sales from local residents.

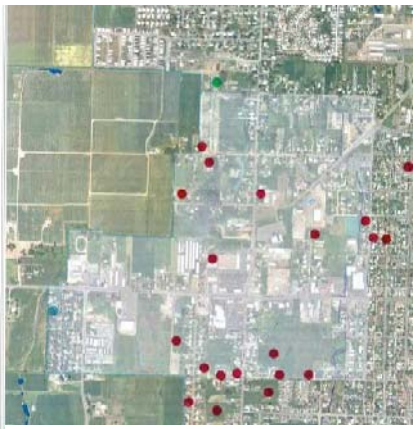
Most new demand will support local-serving businesses and shops. The Primary Market Area is not expected to attract much office development given its proximity to downtown. Office development that does occur will likely be local-serving professional uses like accountants, real estate agents, etc. If the aesthetic appeal is enhanced then potentially by the end of the forecast period, some more substantial office uses would locate in the Primary Market Area.

Public Involvement

The complete planning process is detailed in Appendix A. The planning process was guided by public involvement.

Public Involvement Summary

The TAC was created to provide guidance, and review and make recommendations concerning the direction of the project goals, products and timelines. The CAC provided opportunity for interested community members, and property owners to make recommendations concerning the development of the Plan. Stakeholder interviews and meetings were conducted to gain an understanding of the planning and design opportunities and constraints, discuss ideas and visions for the TOD, and specific development ideas.



Residences of Open House Participants

Design Dialogue

Stakeholder interviews, focus groups, and design workshops, collectively referred to as a Design Dialogue, engaged participants in the discussion and creation of conceptual alternatives for the West Main TOD Plan. Participants included members of the CAC, TAC, the Joint Transportation Subcommittee, neighborhood associations, property owners, adjacent residents, representatives from RVTD, City Council, Planning Commission, and the general public. The Design Dialogue involved:

- An evening presentation on TOD planning concepts at a public charrette/open house;
- Overview of the planning process;
- Description/timeline of the activities that will take place during the design dialogue meetings and charrette/open house;
- Question/comment period for the Consultant, stakeholders, and audience members to interact with one another;
- Overview of the development opportunities and constraints;
- Overview of the Market Research and Void Analysis; and
- Discussion of two conceptual, pedestrian friendly, transportation-efficient concepts that were created during the Design Dialogue sessions.

The two alternative concept plans were then refined to produce the final Conceptual Neighborhood Development Concept in concert with separate annotated diagrams illustrating:

- Transportation and circulation issues;

- Detail plans of portions of the TOD illustrating potential parcelization arrangements, building setbacks, and orientation, the design of streets and accessways;
- Arrangement of parking areas, parking layout and measures for the commercial and neighborhood core, especially opportunities for shared or public lot parking, as well as on street parking; and
- Street cross sections.

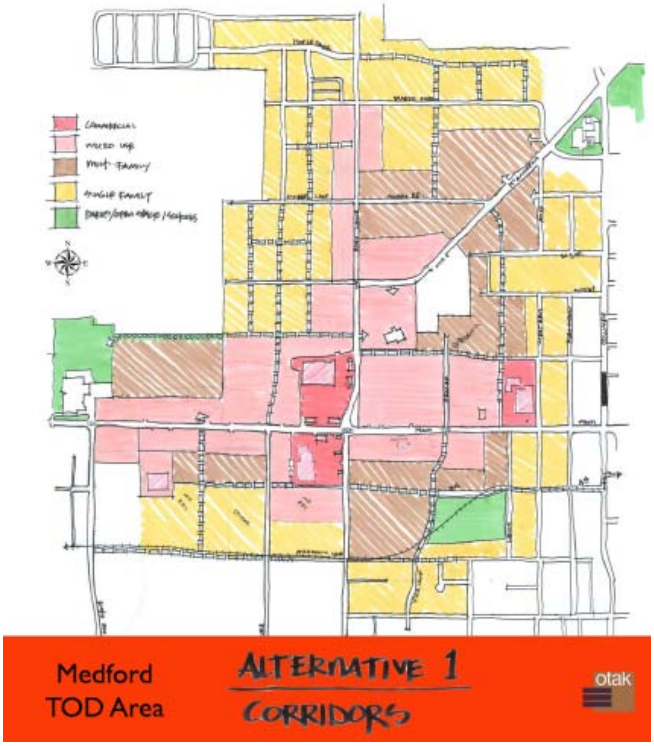
The final West Main Transit Oriented District Plan and its accompanying policies are detailed in the section Preferred West Main TOD Plan.

Evaluation of Two Alternative West Main TOD Concept Plans

Two land use alternatives were considered: the Corridors Alternative and the Nodes alternative. Please see Appendix P and Appendix R.

Corridors Alternative

The Corridors Alternative recognizes the importance of creating linear mixed-use areas along the major streets, including West Main Street, North Ross Lane, and West McAndrews Road. From the perspective of visitors and residents, the TOD corridors would have a distinctive pedestrian design and urban landscape that includes relatively wide sidewalks, marked cross walks, medians, landscaping, lighting, transit shelters, and thematic signage/gateway treatments. The building facades and pedestrian orientation of building entrances would be located at or near the sidewalks, with side or rear vehicle parking locations.

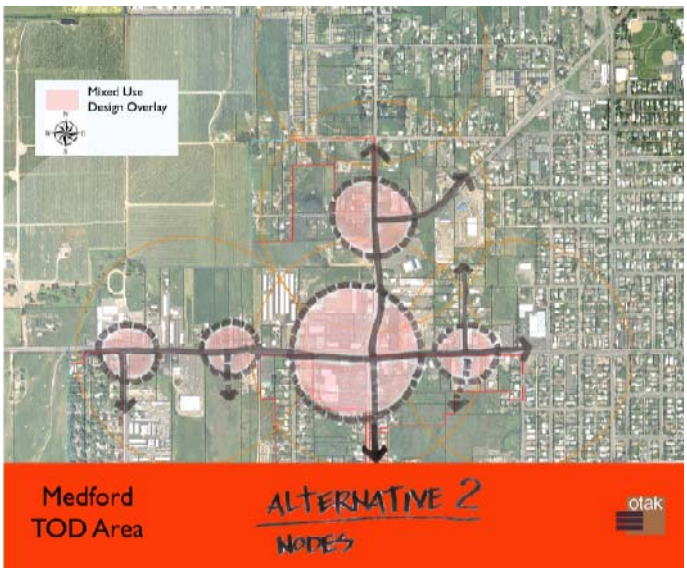


Land uses would consist of commercial retail and office along the corridors, with upper level development that includes either office or housing. Behind this "front row" of mixed use development would be medium and high

density housing (2-5 stories) with a mix of single family townhomes, apartments, and condominiums (12-36 dwellings per acre). Lower housing densities would occur outside the "second tier" of development, with a mix of small lot detached single family d development and duplexes (6-10 dwellings per acre).

Nodes Alternative

The Nodes Alternative designated areas at key intersections within the West Main TOD where significant investment is made in pedestrian and transit facilities, such as wide sidewalks, cross walks, special lighting, landscaping, and transit shelters. The amount of public investment is less than what would be required to support the "Corridors" alternative.



The land use types and density patterns that are expected with the "Nodes" Alternative would include high density mixed-use development within the key nodes, such as at Main/Western, Main/North Ross, Main/Clover, and at North Ross/McAndrews. It is expected that nodes would consist of 2-5 story buildings with office or housing over retail in most structures. The average housing density levels for these areas would range from 18-24 dwelling units per acre. Other areas along the streets are expected to conform to market dynamics which is expected to produce commercial and residential development at lower densities (10-36 dwelling units per acre) in form of single use commercial buildings, town homes and apartments.

Areas outside the designated nodes not along major streets consist primarily of small lot single family detached housing (6-10 dwellings per acre).

Evaluation of West Main TOD Concept Plan Alternatives

Evaluation criteria were utilized to build upon the general objectives of the West Main TOD, which included:

- Reducing auto reliance, with enhanced use of bicycles, walking and transit;
- Adopting implementation measures, including amendments to the Medford Comprehensive Plan, General Land Use Plan Map, Zoning Map, Development Code, and Transportation System Plan;
- Considering the market analysis for TOD development concepts;
- Using traffic analysis to support TOD implementing amendments.

Through this evaluation, the two alternatives were combined to utilize the best of each concept. In the following West Main TOD Plan, land use in the corridors has supportive general zoning and nodes have a special overlay zone.

Preferred West Main TOD Plan

The preferred West Main TOD Plan emerged from input received during the design dialogue and public open house and the analysis of the two concept plan alternatives. The design dialogue process included input from a series of design dialogue/focus group meetings and a public open house held during late January 2007.

The preferred plan includes local adoption of new land use zoning regulations that would allow greater levels of development within the West Main TOD. It is assumed the development would be classified as: urban density residential (4-10 units per acre); medium/high density residential (10-36 units per acre); mixed use (12-60 units per acre plus commercial office or retail); employment (existing industrial uses); and commercial (existing commercial uses and allows 20-60 dwellings per acre). This plan also includes a conceptual local street network plan which establishes a pedestrian oriented street grid that supports transit.

Bus transit service is assumed to continue along West Main Street with enhanced transit facilities at key nodes or stops. Additional bus transit service is assumed to occur along North Ross Lane and McAndrews Road with key stops at the Ross/McAndrews and McAndrews/Western intersections. Peak hour service headways are expected to be 30 minutes by year 2030.

Land Use and Zoning

Preferred Alternative

The preferred land use alternative includes the following land use and zoning map amendments. The preferred land use designations and zones within the West Main TOD would generally be consistent with the City's existing zoning districts for: Commercial (C-C), Service Commercial (C-S/P), Park (no specific zone), Urban Residential (SFR-10), and Urban Mediu m Density Residential (MFR-15) plan designations. It is recommended that the C-C and C-S/P zones be amended within the West Main TOD to allow single family attached townhouses and condominiums. This change would require lowering the minimum density standard from 30 units per acre to 12 units per acre for the C-C and C-SP zones. It is expected that this change would result in a greater mix of housing types in the West Main TOD and

facilitate redevelopment and conversion of under-utilized parcels to a higher use that is consistent with desired TOD development.

In addition to code amendments, the zoning map and Comprehensive Plan, including the General Land Use Plan (GLUP) Map will need to be amended to reflect the West Main TOD Overlay Zone. The map amendments must be consistent with the West Main TOD Plan Map to ensure the goal of creating a mixed use transit oriented neighborhood is achieved.

Appendix Z outlines the suggested Comprehensive Plan Amendments necessary to include in the West Main TO D section of the Neighborhoods Element. Goals, policies, and implementation Measures for the West Main TOD are outlined in a manner that's consistent with the Southeast Plan section of the Neighborhoods Element.

The preferred land use zoning map is provided in Figure XX. The proposed zoning code changes and overlay zone can be found in Appendix Z.

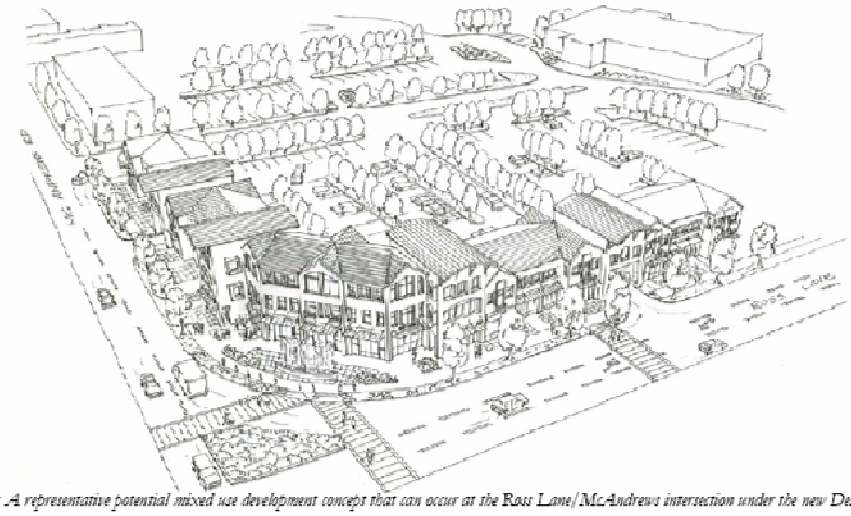


Figure XX: A representative potential mixed use development concept that can occur at the Ross Lane/McAndrews intersection under the new Design Overlay District.

Urban Design Overlay Zones

In addition to the land use designation and zoning changes, an urban design overlay is applied to four key intersections. This overlay zone would provide additional development incentives and restrictions for all tax lots that are within 600 feet of the intersections of McAndrews/Ross Lane, Main/Western Avenue, Main/Ross Lane, and Main at the current BiMart.

At these key transit stops and transportation intersections, the design overlay does the following:

- Reduces parking by 25% for commercial and office uses;
- Retains the City of Medford parking requirements for multi-family buildings;
- New buildings must have a mixed use function, with an exception for small parcels; and
- No drive-thrus will be permitted.

Proposed zoning amendments and urban design standards are summarized in Appendix Z. The combination of urban design standards, revised local street standards, and revised land use, zoning, and development code standards, and strategic public investment in transit service, transit/pedestrian facilities, and art/gateway features sets the stage for new transit-oriented mixed use developments that improve the image, character, and function of the West Main TOD.

Implementation

Plans and Policies

The West Main TOD Plan carries out refinements to Medford's TSP and the Rogue Valley Metropolitan Planning Organization's 2005-2030 Rogue Valley RTP. The West Main TOD is one of four transit-oriented districts identified in the City's TSP. The City of Medford will fulfill requirements of the Oregon Transportation Planning Rule (TPR) by making changes to the Medford Comprehensive Plan and the Medford Land Development Code to implement the TOD plan.

The West Main TOD plan is to be implemented through a special area plan and overlay zone, with a combination of supporting Comprehensive Plan policy amendments, development standards/guidelines and TSP amendments, which are outlined below. These recommendations can be used by the City to implement the West Main TOD Plan.

Comprehensive Plan Policy Statements

In order for the West Main TOD to be successful, new Comprehensive Plan policies and code amendments for the TOD must be implemented by the

City. These policies and regulations must address the integration of transportation and land use to achieve transit oriented design and development. A summary of Land Development Code and Comprehensive Plan amendments are provided in Appendix 1 and 2.

West Main TOD Comprehensive Plan goals and Policies

- Goal 1: increase the amount of pedestrian and bicycle trips and reduce the number and length of motor vehicle trips within the area.
- Policy 1 to implement Goal 1: Provide an interconnected street system that has a maximum 500 foot distance between pedestrian street crossings.
- Policy 2 to implement Goal 1: Create a mixed use neighborhood that provides a variety of housing as well as retail, service, and employment opportunities for neighborhood residents
- Implementation 1 for Policy 2: Residential development in the West Main TOD shall provide a variety of housing types and sizes.
- Implementation 2 for Policy 2: provide a minimum average density of 14.4 units per acre.
- Policy 3 to implement Goal 1: Assure that the minimum densities and housing types are achieved and located as proposed in the West Main TOD Plan.
- Policy 4 to implement Goal 1: Create a vibrant streetscape with residential design features such as placing garages on alleys, providing front porches, planter strips with street trees, sidewalks, and pedestrian-scale lighting, and commercial storefront design with architectural detailing such as active uses on the street level, storefronts, outdoor dining, textured materials, to promote walking.

Transportation System Plan and Parking Code Amendments

Amendments of the Medford Transportation System Plan is needed to adopt the West Main TOD conceptual local street network plan. Street circulation and connectivity standards are required to ensure the West Main TOD Plan is implemented successfully. Proposed parking management and design standards amendments are intended to assist in satisfying the TPR OAR 660-012-0045 (5)(c)(A) to "achieve a 10 percent reduction in the number of parking spaces per capita in the MPO area over the planning period."

According to the Oregon Transportation Planning Rule [TPR OAR 660-012-0045 (5) (d)] and the Medford TSP, the City of Medford must reduce minimum off-street parking requirements for non-residential uses. The proposed revisions include the use of on-street parking and shared parking to meet minimum off-street parking requirements; establishing off-street parking maximums particularly in transit-oriented developments; exempt structured parking and on-street parking from parking maximums; require that parking lots over 3 acres in size provide street-like features along major driveways (including curbs, sidewalks, and street trees and planter strips); and provide for designation of residential parking districts.

Parking Policy Recommendations for West Medford Transit Oriented District

To fully comply with the Oregon Transportation Planning Rule (TPR) Section 0045(5)(d), the Medford Regional Transportation Plan, and the Medford Transportation System Plan (TSP), it is recommended that the City of Medford adopt specific parking policies for the West Main TOD and potentially other areas of the City that include:

Policy 1: Establishing maximum parking requirements to reduce the amount of off-street parking supply provided by businesses. Exemptions to the standards can be provided for shared parking, parking structures, and valet parking spaces.

Policy 2: Establishing lower minimum parking requirements as incentives to encourage in-fill development and the use of alternative travel modes. Parking within the TOD should ensure adequate parking without requiring excessive parking.

Policy 3: Allow applicants to request a reduction in parking standards based on a parking impact study. The impact study allows applicants to propose a reduced parking standard based on estimated peak demand, reductions for likely transit and car pool riders, adjacent shared parking, and adjacent on-street parking. Incentives can be provided to reduce parking requirements below minimum requirements by 10% for developments that make investments in pedestrian plazas that are physically or functionally linked to transit routes.

Policy 4: Encourage shared parking among adjacent businesses. Shared parking means multiple uses share one or more parking facilities. For shared parking to work, parking demands for different uses have to "peak" during different times of the day. Shared parking can be allowed regardless of whether the zoning ordinance requires any off-street parking, or whether public parking is available.

Policy 5: Consider providing off-street public parking lot(s) and forming a Transportation Management Association to collect revenues for maintenance of public parking lots. Develop pricing management strategy for city-owned parking facilities with focus on long-term, private employee parking car pool demand. The intent of this policy strategy is to discourage employees from using single occupant vehicles to commute to work. Pricing policies should be considered as a means of providing incentives for car pool parking and disincentives for single occupant vehicles.

Policy 6: Adopt a conceptual local street network plan and enforce compliance as a condition of approval for new development. This policy will assist with achievement of Policy 6 and other policies designed to promote non-motorized travel and transit usage. Please refer to Figure XX (Conceptual Street Network).

Policy 7: Provide on-street parking when possible. On-street parking slows traffic, creates better pedestrian environments by buffering sidewalks from moving vehicles, increases the viability of retail shops and commercial services, and reduces the amount of land used for off-street parking lots. New local streets will be planned and constructed in accordance with the Medford Functional Classification Standards (Table 3-2 of the Medford TSP), which includes 2 parking lanes along "Standard Residential" streets and "Minor Residential" streets.

Policy 8: Encourage structured parking in underground or multistory parking garages;

Policy 9: Prepare Parking Management Plan to manage on-street parking along public streets, with consideration of unique treatment for commercial and residential districts. A West Main TOD Parking Management Plan should be prepared to inventory existing public on- and off-street parking inventory, and utilization, designate commercial and residential districts,

provide proper signage, provide proper regulations regarding parking duration, required permits, cost (if any), and the like.

Policy 10: Encourage large employers (20 or more employees) to develop and implement a Transportation Demand Management (TDM) program to increase the use of transit rider ship, car pooling, van pooling, and use of hybrid fuel vehicles. TDM strategies can include: provision of bus passes, designated car pool, van pool, compact vehicle spaces, provision of flex cars for employee usage, etc.

Policy 11: Encourage placement of new private off-street parking to be located at the side or rear of buildings, so that building entrances can be closely oriented to sidewalks and transit facilities. Please see example in Figure XX.

Parking-related Development Code Amendments

In order to enact the general recommendations for the West Main Transit Oriented District, amendments will need to be made to the Medford Land Development Code. Please see Appendix Z for a complete set of revised parking policies.

Transportation Analysis

Development Assumptions of West Main TOD Concept Plan

In order to determine the implications of the West TOD, peak period traffic forecasts for 2023 and 2030 were developed for each of the study area intersections identified. Traffic was analyzed for four different alternatives for growth in the West Main Transit Oriented District.

In order to understand existing conditions, a Baseline Study was done of existing traffic conditions in the area (Scenario 1). A No Build Alternative was studied to examine how traffic would change with no growth with the West Main TOD boundaries(Scenario 2). A third Market Alternative assumes market-driven development that is expected to occur with existing zoning and takes into account the findings derived from the Market Study (Scenario 3). The fourth alternative, assumes development at higher densities with new zoning and design standards, as well as an improved local street network with new block grid spacing of 300 to 500 feet (Scenario 4). The fourth alternative represents the forecasting results of implementing the preferred West Main TOD Plan.

Development assumptions associated with the various alternative scenarios are presented and described in Appendix T.

Current Traffic Operations (Scenario 1)

Currently, all signalized study area intersections are operating within the applicable ODOT or City standards with one exception. The intersection of McAndrews Road at Sage Road currently does not meet the standards. Two unsignalized intersections do not meet applicable City of Medford standards. These include the intersection of Ore 238 with Ross Lane, and McAndrews Road and Ross Lane.

2030 Traffic Operations

The 2030 PM peak hour traffic volume projections were analyzed to address anticipated capacity and operational deficiencies at each study area intersection for each alternative. However, it should be noted that several street and/or intersection improvements are anticipated to be in place by 2030 under each of the alternatives. These include:

- Installation of a traffic signal and added lane channelization at the intersection of McAndrews Road with North Ross Lane. Jackson County is currently designing improvements to both of these intersections including

added turn lane capacity and signalization at McAndrews Road and improvements to westbound right-turn channelization at Ross Lane.

- Installation of a traffic signal without additional lane channelization improvements at the intersection of OR 238 (Rossanley Drive) with North Ross Lane (in 2009).
- Realignment and extension of Columbus Avenue north of McAndrews Road to provide direct connection with Sage Road. Sage Road would be reduced to local street status, but existing intersection channelization and traffic signal would remain.

2030 No Build Alternative (Scenario 2)

Appendix T summarizes future 2030 traffic operations for the PM peak hour at the study intersections for each alternative, and compares these results to existing (2007) conditions. By 2030, several intersections are expected to experience significant delays for stop-controlled side street traffic and at signalized intersections with the No Build Alternative. The data in Appendix T indicates that seven intersections are expected to fail City or ODOT standards. The failing intersections include:

- Ore 238 (Rossanley Drive) and Sage Road
- OR 238 (Rossanley Drive) and North Ross Lane
- Main Street and Columbus Avenue
- Main Street and North Ross/Lozier Lane
- Stewart Avenue and Lozier Lane
- Jackson Street and McAndrews Road (unsignalized)
- Jackson Street and Columbus Avenue (unsignalized)

For most of the poorly performing signalized intersections, signal retiming or additional lanes would be required to bring the intersections into compliance with operational standards.

2030 Market Alternative (Scenario 3)

Appendix T presents the results of the intersection level traffic operations analysis for the study intersections that were evaluated with the Market Demand Alternative. The data in Appendix T indicates that at five intersections, average delay actually decreased slightly from the No Build Alternative, including OR 238 at Ross Lane, McAndrews Road at Columbus Avenue, 8th Street at Oakdale Avenue, Main Street at Columbus Avenue, and Main Street at Ross/Lozier Lane. The decrease in delay is nominal and has little impact on overall intersection operations. Analysis results indicate

that the same seven intersections in the No Build Alternative are expected to fail either the State standard or the City's operational standard for intersection level of service with the Market Alternative.

2030 TOD Alternative (Scenario 4)

Appendix T also presents the results of the intersection level traffic operations analysis for the TOD alternative. The results at five of the intersections evaluated with the TOD Alternative indicated a reduction in delay from the No Build Alternative. These intersections included OR 238 at Sage Road, McAndrews Road at Columbus Avenue, McAndrews Road at Ross Lane, 8th Street at Oakdale Avenue, and Main Street at Columbus Avenue. The trip differences between the alternatives are nominal and have little impact on the resulting overall intersection operations. The data in Appendix T indicates that the same seven intersections in the No Build and the Market Alternatives are expected to fail either the State standard or the City's operational standard for intersection level of service with the TOD Alternative.

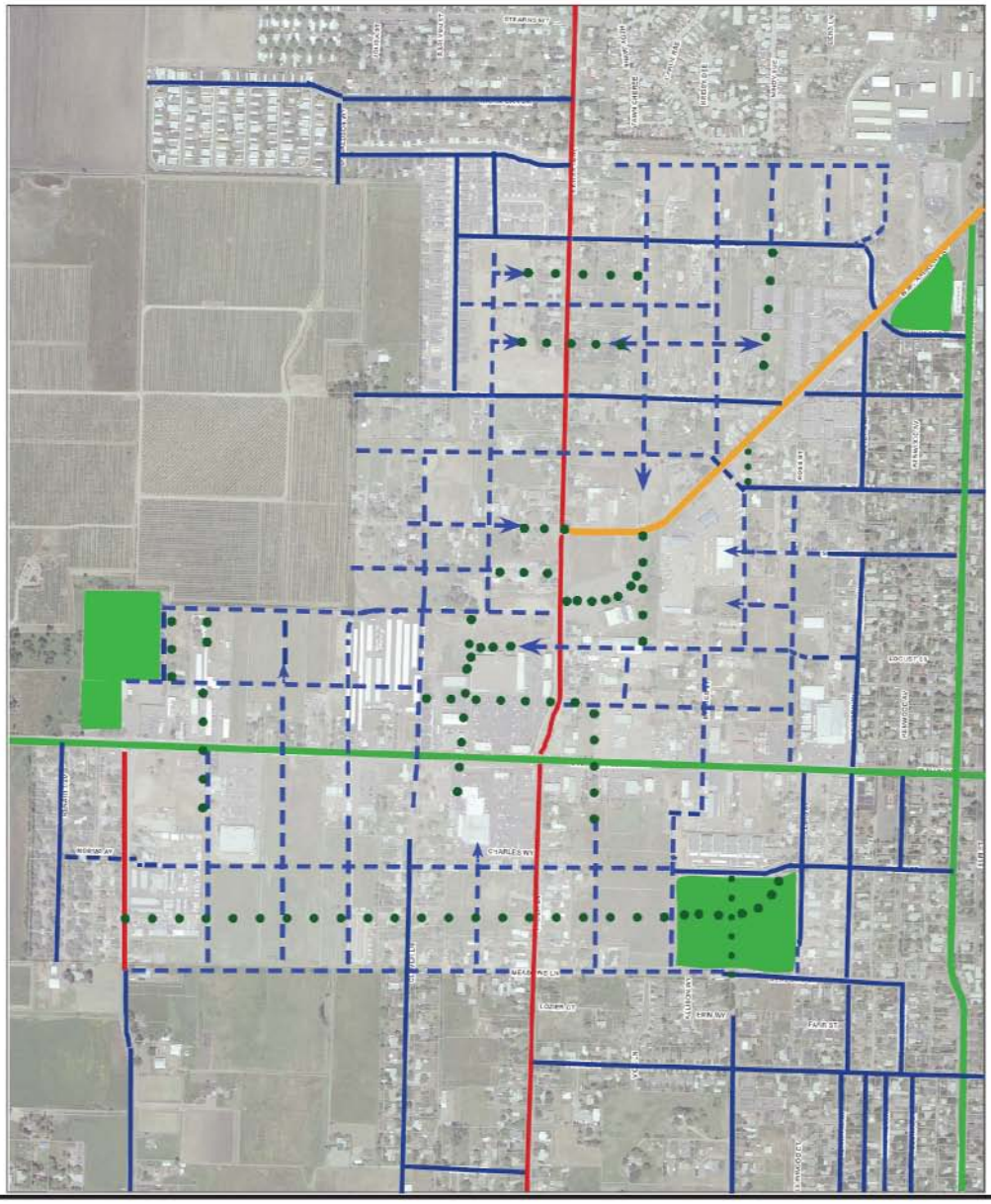
Preferred Conceptual Local Street Network Plan and Street Standards

The preferred TOD plan incorporates a local street and pedestrian network with a local street grid and special street standards that are unique to the West Main TOD. The conceptual local street network plan, illustrated in Figure XX, provides a framework for local street and pedestrian connections. The local street concept plan assumes minimum local street spacing of 300 to 500 feet, along with pedestrian walkways to/from local parks and schools. Although the ideal block size is 200 by 300 feet in a newly developing area, the larger block size allows for the difficulties in re-developing an existing area. New streets in the Conceptual Street Network is based upon create a logical grid, while avoiding current buildings and homes. The local street and pedestrian network plan will help will provide convenient, safe and efficient access for pedestrians and bicycles to/from transit stops and commercial and recreational attractions within the West Main TOD.

Street standards are proposed in combination with revised zoning and development and parking standards. In order to promote pedestrian-oriented development, and as a means of "traffic calming" without sacrificing safety along minor arterial and major collector streets, including West Main Street and North Ross Lane, Street Cross Sections and Dimensions are proposed to be amended to allow 11-foot travel lanes and a

12-foot center turn lane, as illustrated in Figure XX and Figure XX (Street Cross Sections). In addition to providing "traffic calming," this approach would reduce total required right-of-way width to 74 feet, from 78 feet in the existing standard, which lessens property impacts and lo wers improvement costs.

Reclassifying selected local streets from "Commercial" and "Standard Residential" to "Minor Residential" functional street classifications would help improve traffic calming and lessen property impacts within the West Main TOD. This approach would help lower total right-of-way width requirements from 63 feet to as low as 55 feet. Figure XX (Conceptual Street Network) depicts recommended local street classifications within the West Main TOD.

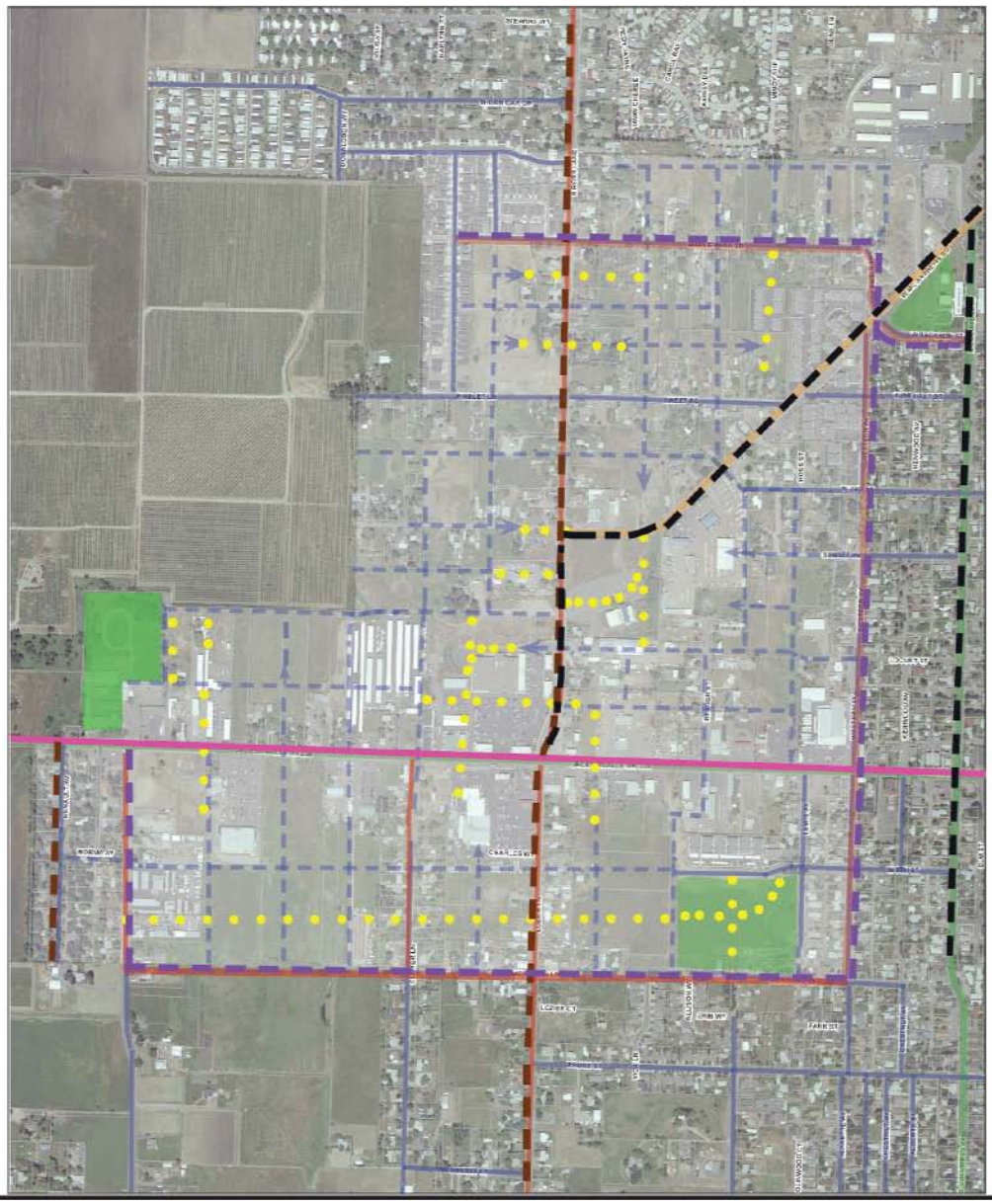


WEST MEDFORD TOD
CONCEPTUAL STREET NETWORK

- Future Multi-Use Path
- Future Minor Residential, Standard Residential or Commercial Street
- Existing Standard Residential
- Existing Minor Arterial
- Existing Major Collector
- Existing Major Arterial

N

September, 2007



WEST MEDFORD TOD
CONCEPTUAL BICYCLE NETWORK

- Future Multi-Use Path
- Future Minor Residential, Standard Residential or Commercial Street
- Existing Standard Residential
- Existing Minor Arterial
- Existing Major Collector
- Existing Major Arterial
- Existing Bicycle Lanes and Shoulders
- Planned Bicycle Lanes/ Shoulders as Part of Road Improvement Projects
- Planned Bicycle Lanes/ Shoulders
- Shared Roadway/ Future Bicycle Boulevard

N

September 2007

West Main TOD Higher Order Street Improvements

The West Main TOD contains four higher order streets. The list below indicates their classification within the West Main TOD:

- West Main Street- Minor Arterial
- North Ross Lane/Lozier Lane - Major Collector
- West McAndrews Road- Major Arterial (east of North Ross Lane)
- Oak Grove Road - Major Collector

Where commercial zoning districts abut these streets, the street design standard will have 15-foot wide sidewalks with tree wells in lieu of five-foot wide sidewalks with 10-foot wide planter strips. This is because this area is expected to have a high amount of pedestrian activity with storefronts abutting the sidewalks. TOD street design is similar to traditional downtowns. The Major Collectors may include on-street parking in certain situations.

Because of their current status as County-jurisdiction streets, portions of West Main Street, North Ross Lane, and West McAndrews Road will have street improvements installed by Jackson County in approximately 2008-2009. Please see Figures XX-XX (Street Cross Sections). This planned improvement by the County does not have the funding to purchase extra right-of-way width and to construct all features to City standards, nor is the City able to help fund these upgrades. One primary difference will be that the County will install five-foot wide sidewalks rather than 15-foot wide sidewalks. In addition, the City will install street lights at intersections. The County will consider the pedestrian emphasis for this area in their designs wherever funding permits.

When properties subsequently develop or redevelop, whether they are annexed to the City or not, the developer will be required to dedicate the additional right-of-way needed to meet City standards, widen the sidewalks to 15 feet in width, install tree wells with irrigation and street trees, and install pedestrian-scale street lights. There may be other street furnishings and/or transit stop requirements.

The West Main TOD Plan will provide the specifications for the sidewalk surface, specific pedestrian-scale street light standard, tree well and street tree standards, and specifications for other similar features.

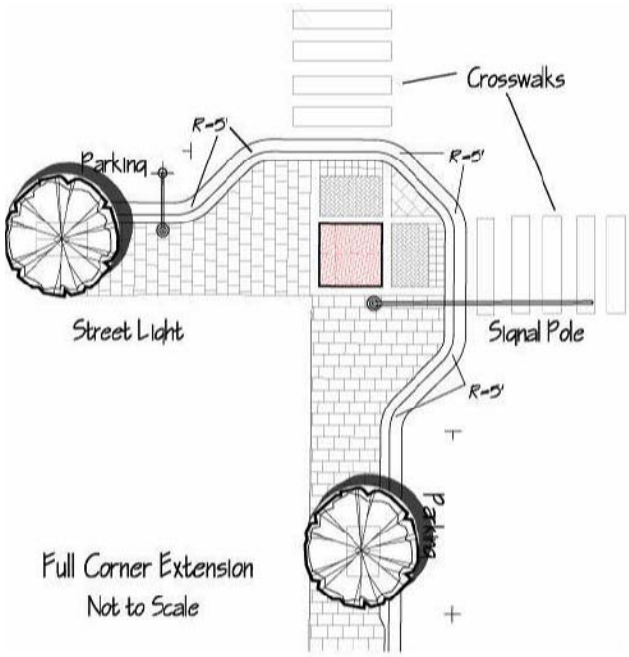


Figure XX: City of Medford Curb Extension Design Standard

City of Medford Street Designs found in the West Main TOD area, are in the following figures:

Figure XX: Minor Residential Street, Street Cross Sections

Figure XX: Standard Residential or Commercial Street, Street Cross Sections

Figure XX & XX: Major Collector, Street Cross Sections

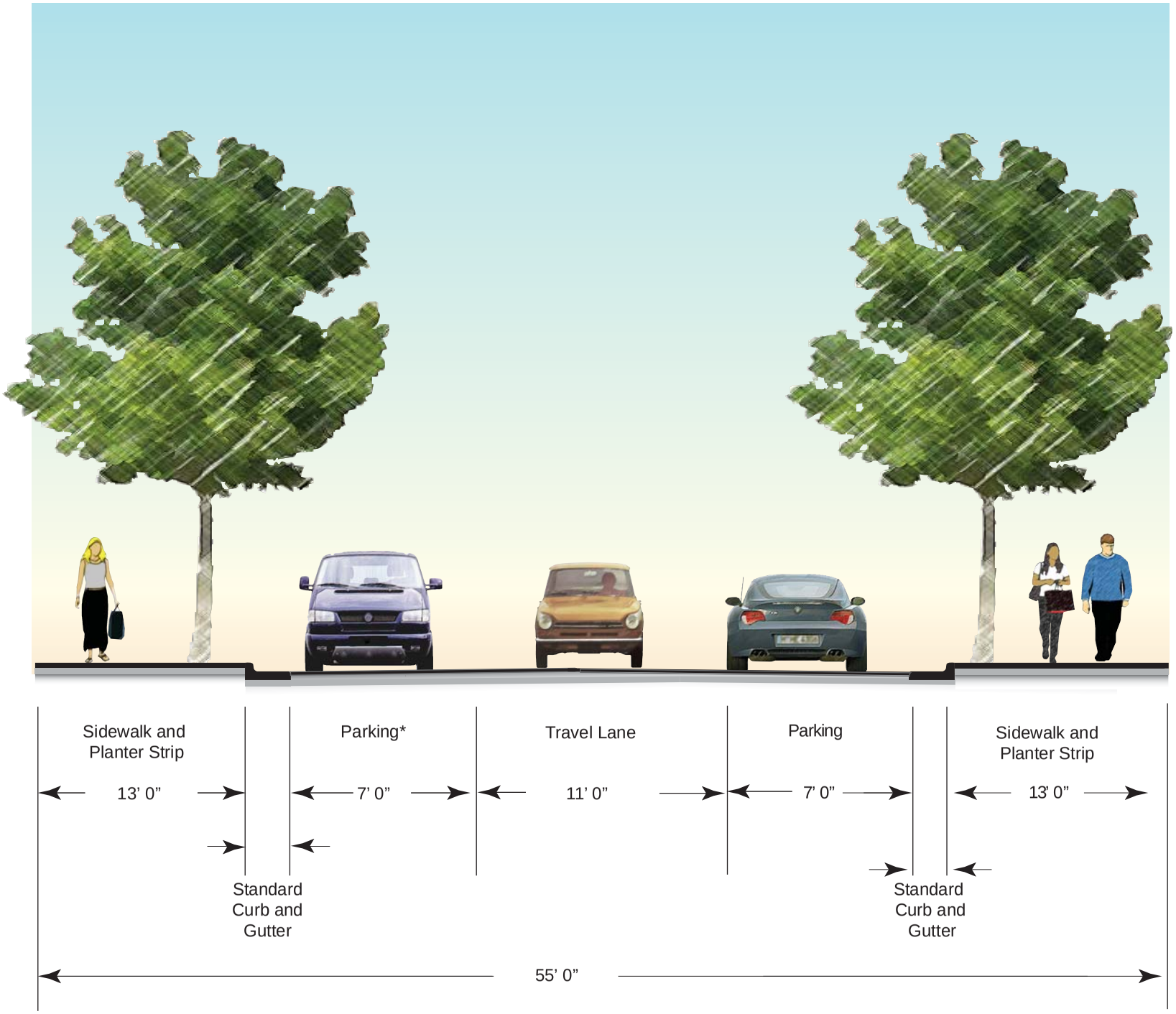
Figure XX & XX: Major Arterial, Street Cross Sections

Planned Street Designs to be built by Jackson County are in the following figures:

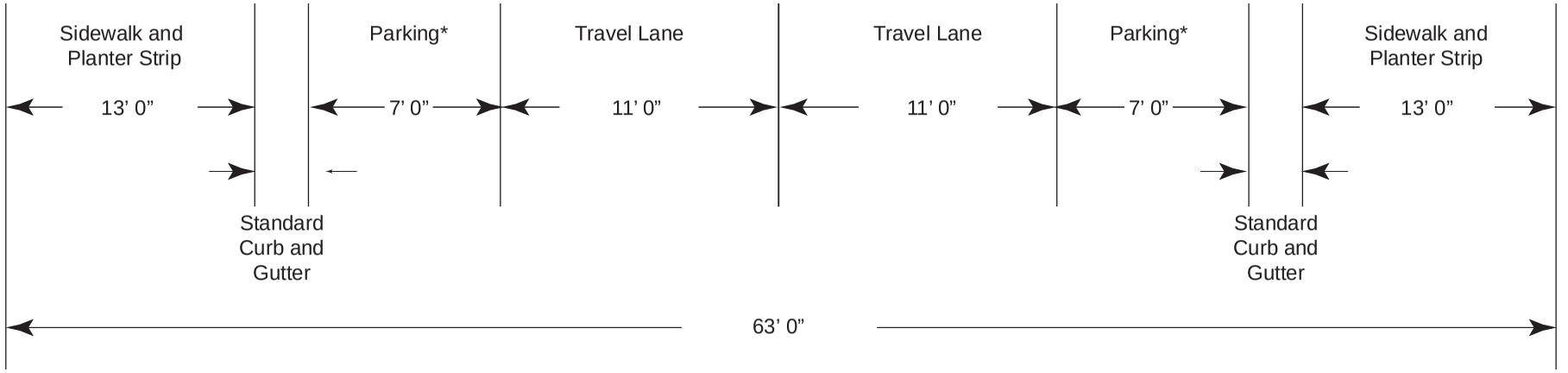
Figure XX & XX: Ross Lane, Major Collector, Street Cross Section

Figure XX & XX: West Main, Minor Arterial, Street Cross Section

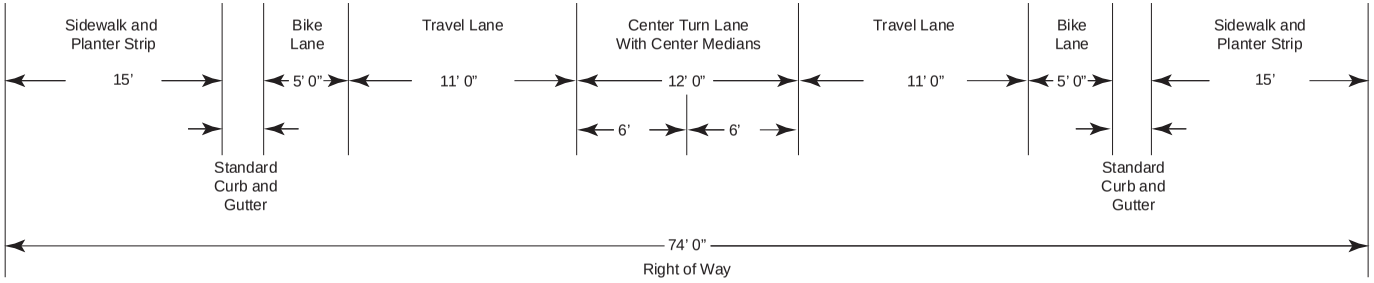
City of Medford Minor Residential Street Design Standard



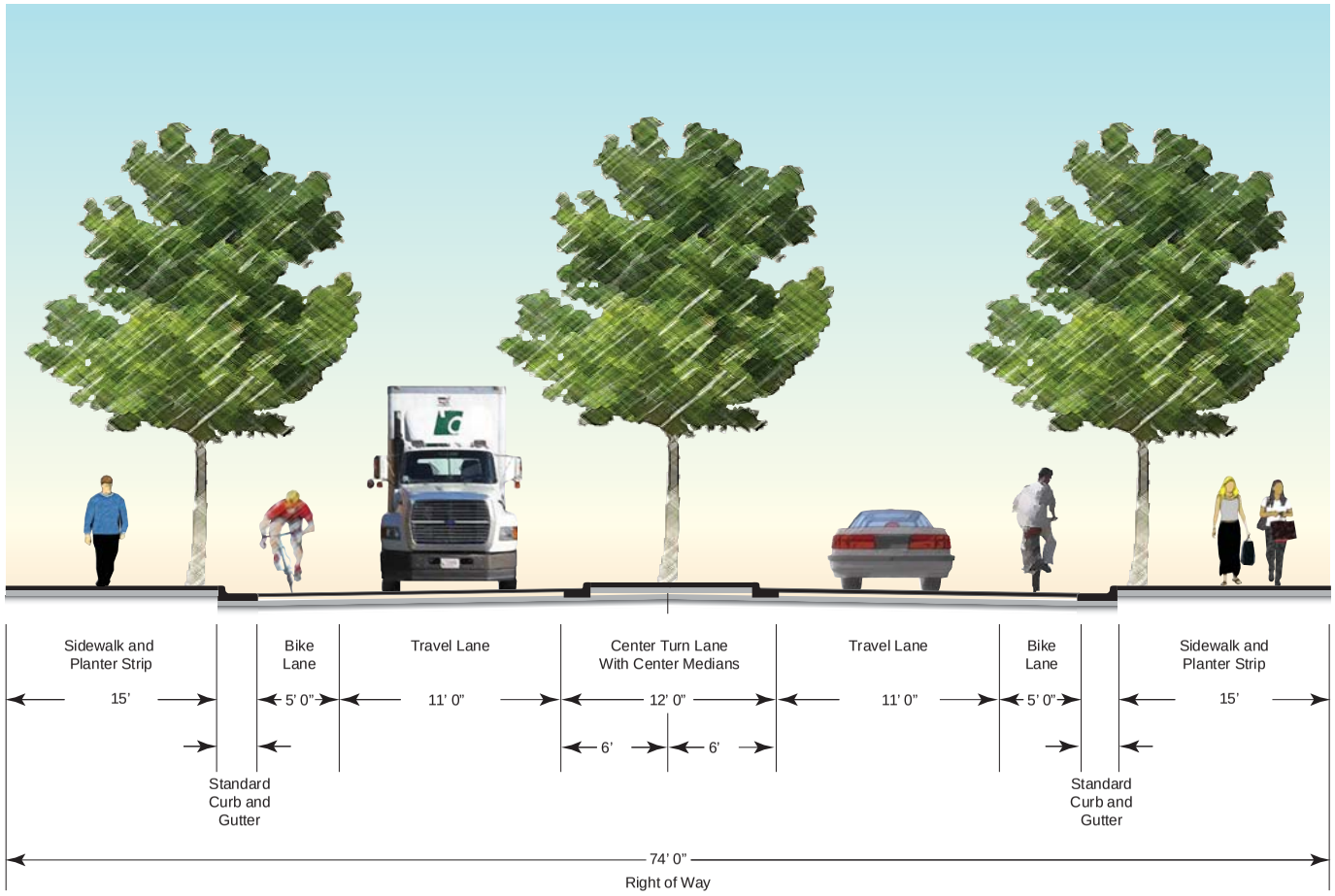
City of Medford Commercial and Standard Residential Street Design Standard



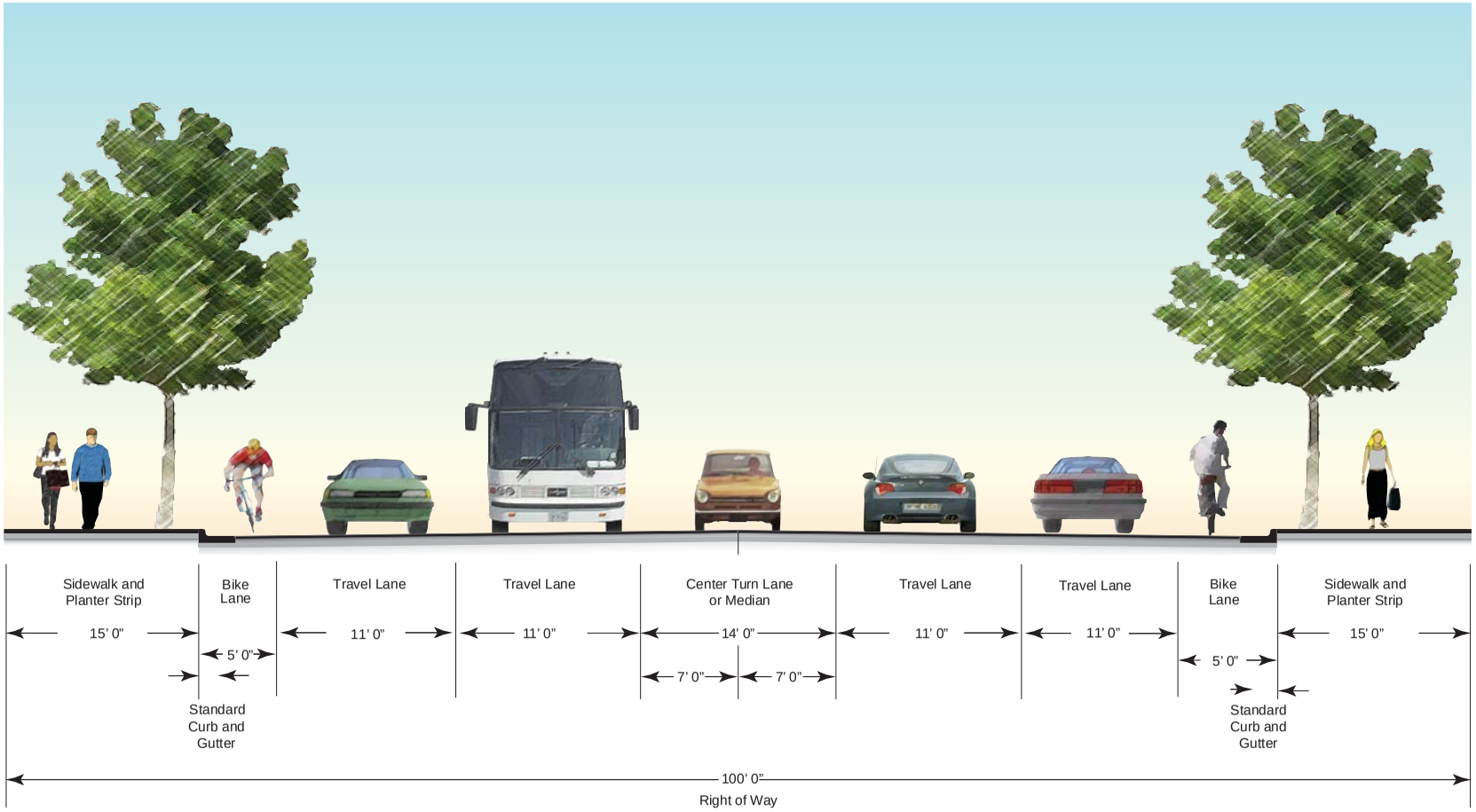
City of Medford Major Collector Design Standard
Oak Grove



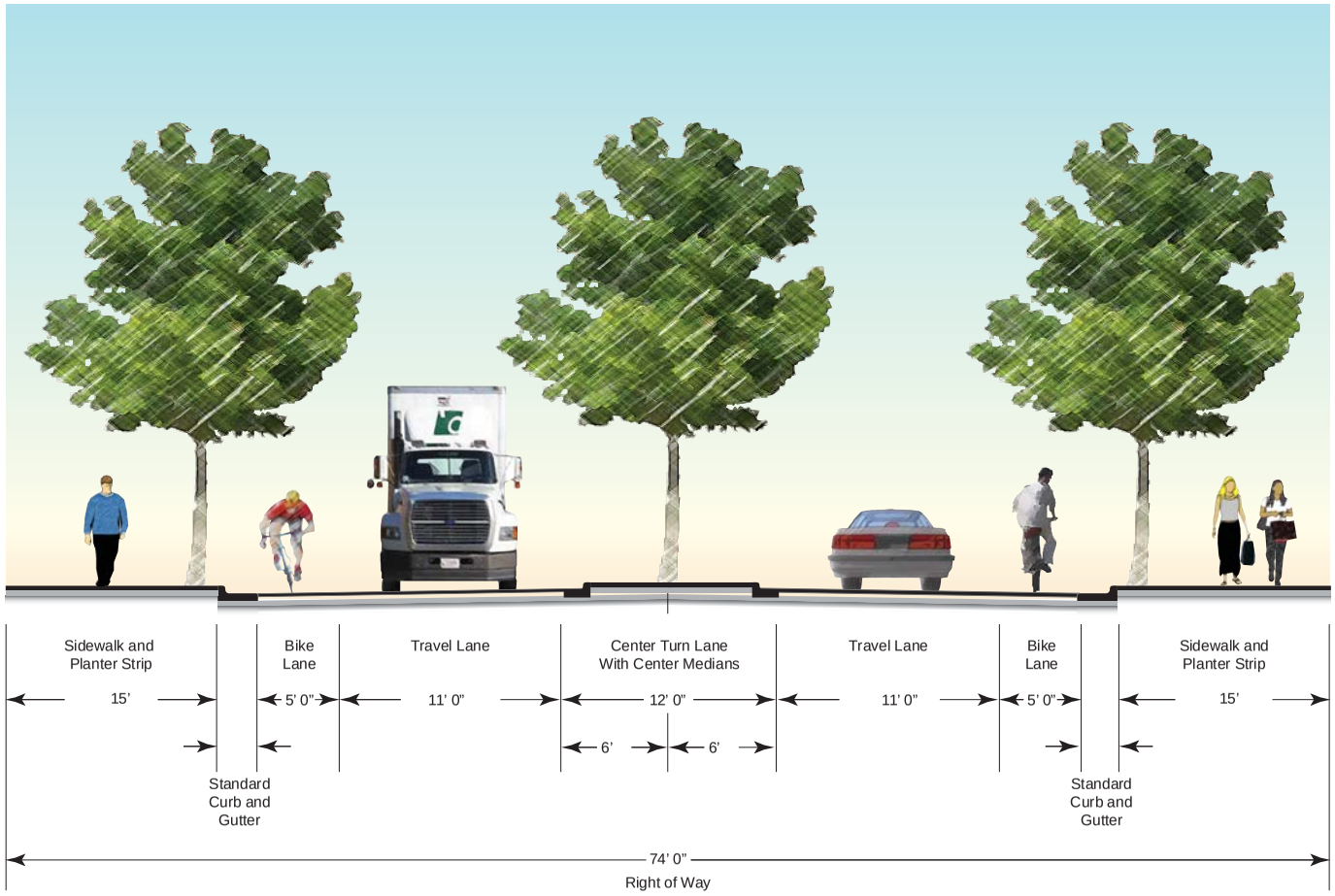
City of Medford Major Collector Design Standard with Park Median
Oak Grove



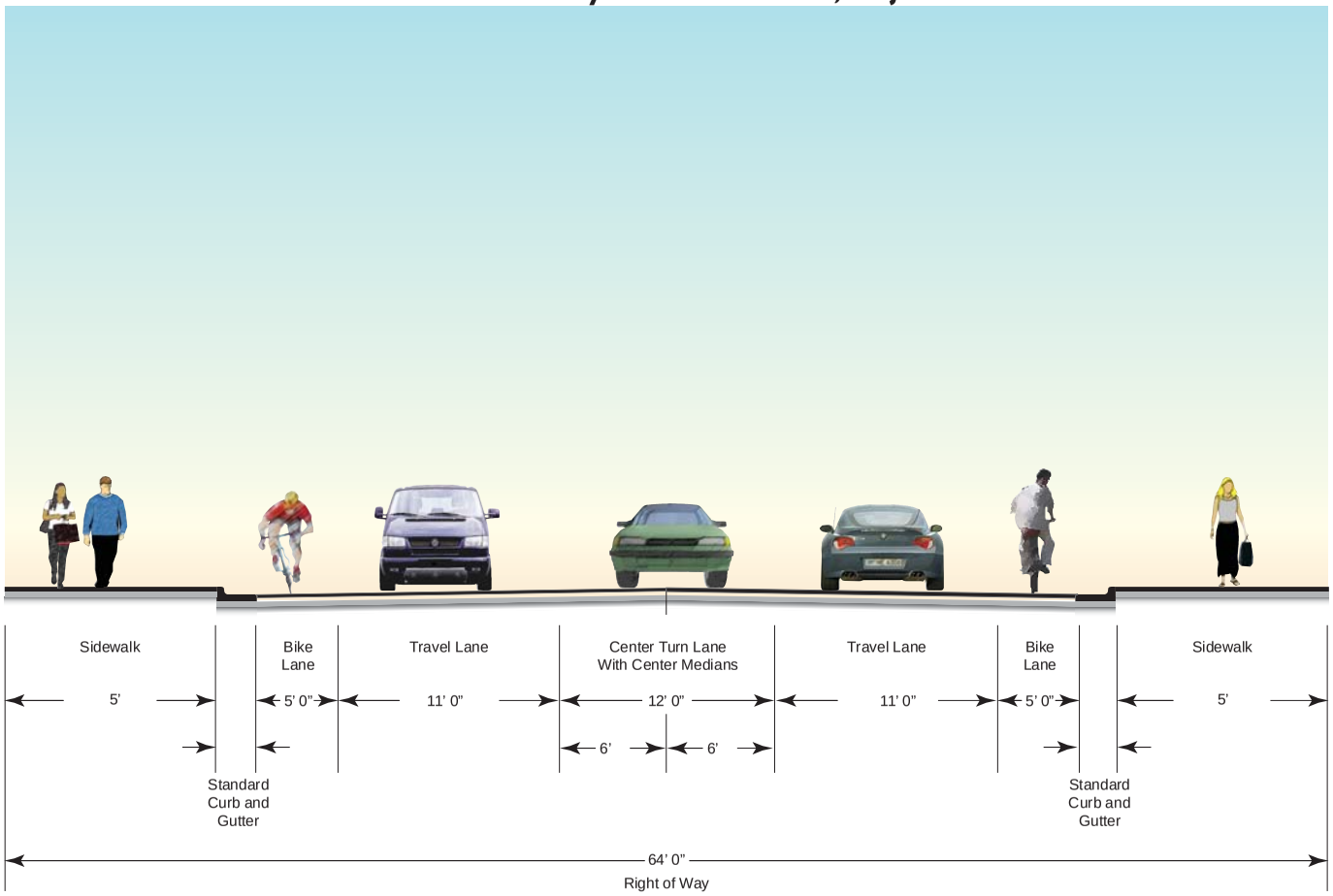
City of Medford Major Arterial Design Standard
McAndrews Road



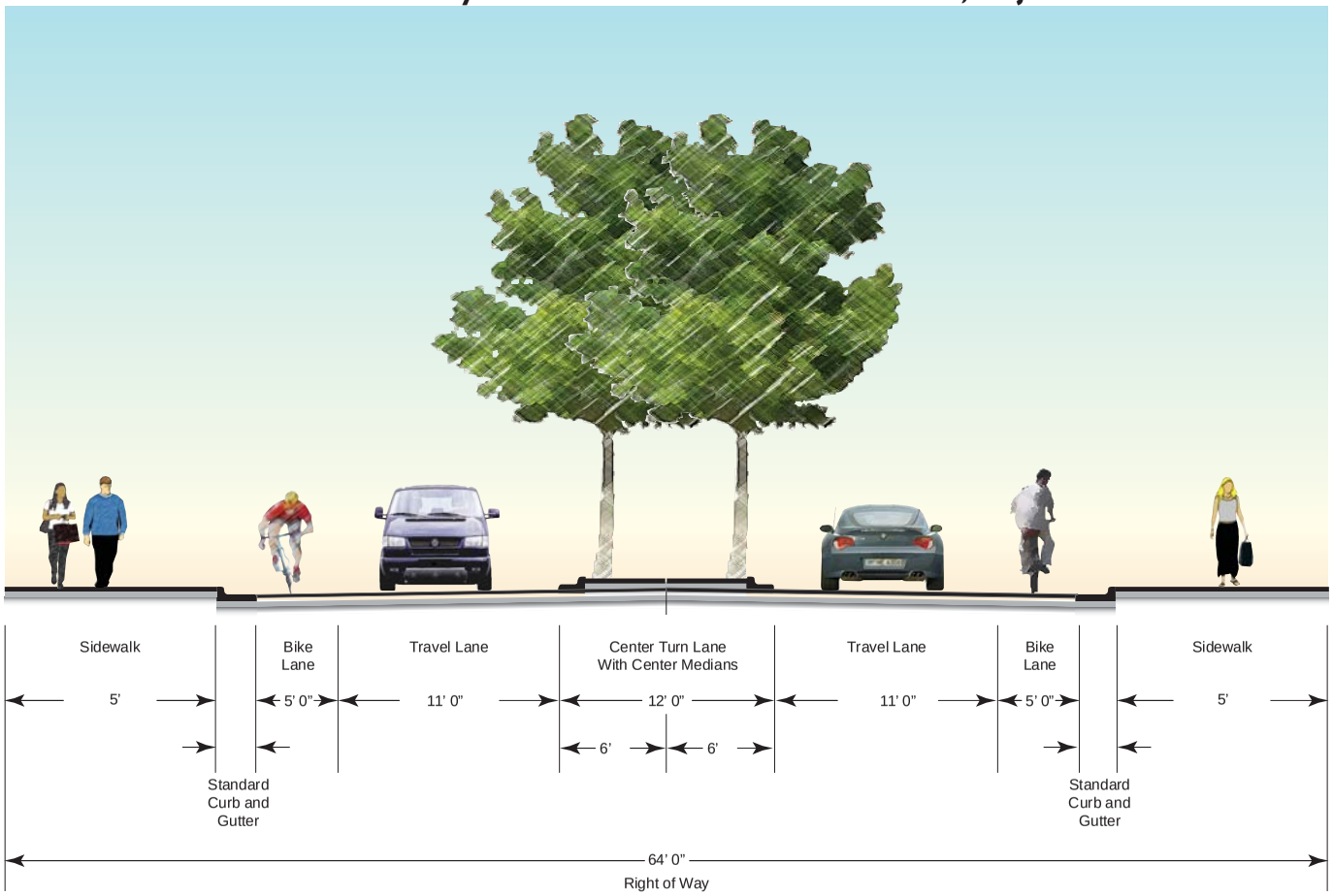
City of Medford Major Collector Design Standard with Park Median
Oak Grove



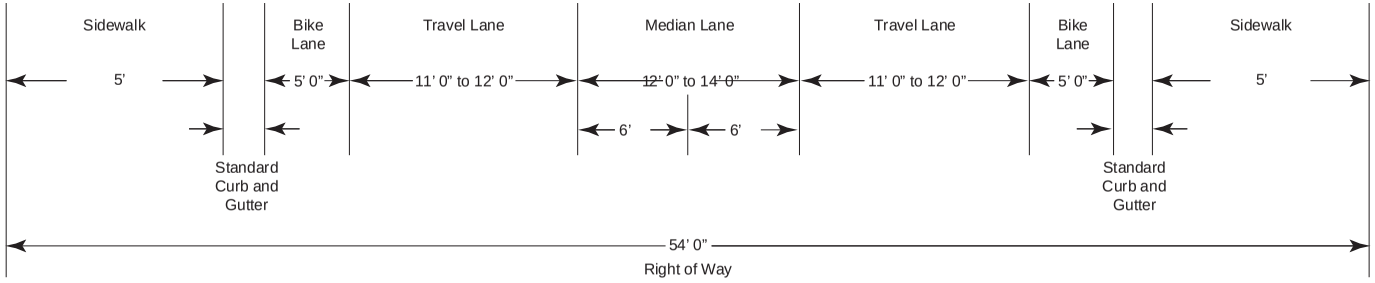
Ross Lane Improvements, Jackson County
Planned to County Road Standards, Major Collector



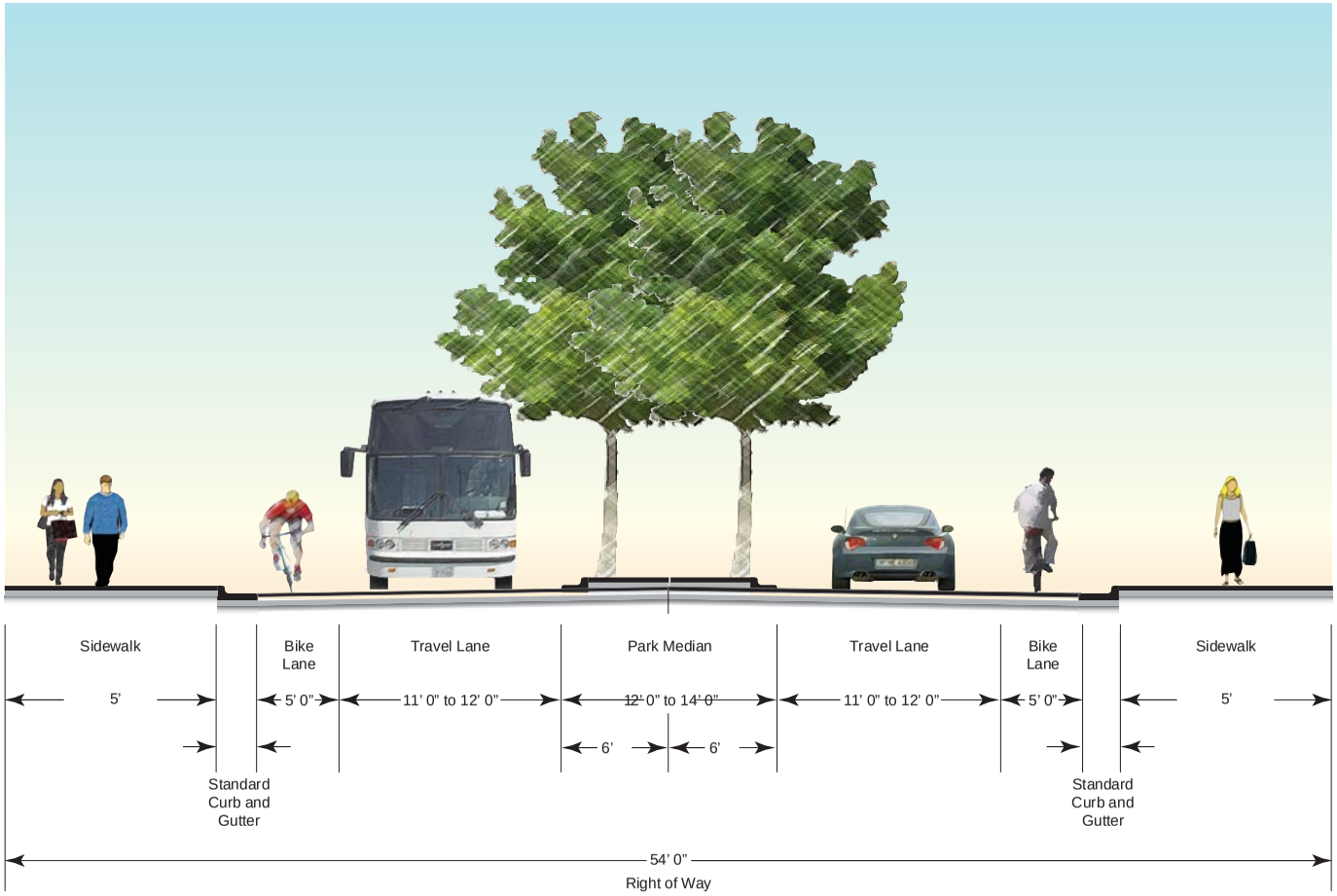
Ross Lane Improvements, Jackson County
Planned to County Road Standards with Park Median, Major Collector



West Main Street Improvements, Jackson County
Planned to County Road Standards, Minor Arterial



West Main Street Improvements, Jackson County
Planned to County Road Standards with Future Park Median, Minor Arterial

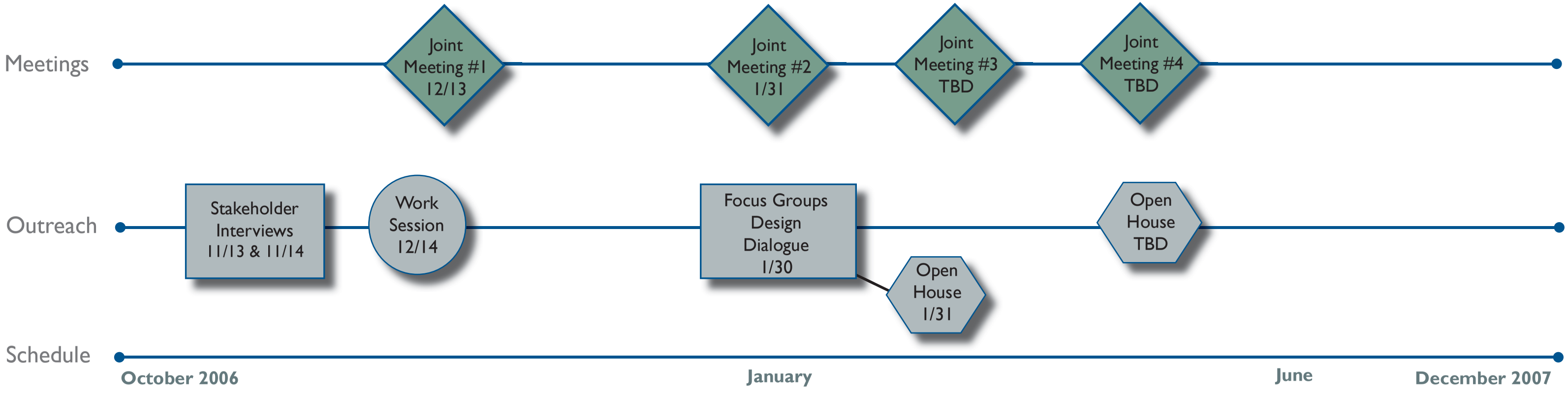


Appendix A - Plan Process

Medford West Main TOD Study

Work Plan Summary

Tasks	Task 1 & 2 **Committees & Project Kick-off**	Task 3 **Opportunities & Constraints**	Task 4 **Market Research & Void Analysis**	Task 5 **Design Dialogue**	Task 6 **Alternative Refinement**	Task 7 **Preferred Alternative**	Task 8 **Implementation Amendments**	**Task 9 Master Plan**
Key Outcomes	• Site Visit • TOD Boundary • Stakeholder Interviews • Joint Meeting #1 • Base Maps	• Technical Memo #1-Opportunities and Constraints • TOD Principles Power Point • Decision Maker Work Session • Joint Meeting #2	• Technical Memo #2-Market Research • Focus Group Meetings • Joint Meeting #3	• Design Dialogue • Development Concept Alternatives • Open House	• Model Run Assumptions • Technical Memo #3-Conceptual Development Analysis • Facilitate Joint Meeting #4	• Open House • Preferred Alternative • Technical Memo #4-Traffic Analysis/ Refinement Report • TOD Concept Plan	• Technical Memo #5-Implementation Amendments	• TOD Master Plan



January 18, 2007

Appendix L – Tech Memo #2

FERRARINI & ASSOCIATES, INC.
Real Estate Advisory Group

Date: January 11, 2007

To: Todd Chase
Senior Project Manager, OTAK

From: Steve Ferrarini
Ferrarini & Associates, Inc.

Subject: West Main Transit Oriented Development District Market Analysis

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Introduction
Ferrarini & Associates task was to describe current market conditions for residential and commercial development in the West Main Transit Oriented Development (TOD) district and to forecast the potential for future development to occur in this area over the next twenty years. This forecast pays particular attention to the likelihood that higher density forms of residential development will occur. This is important because a major goal of TOD is to have enough housing within close proximity to transit stops in order to increase the usage of transit service. This report also forecasts new retail development opportunities in the district which will be driven by new household and population growth in the area.

The intent of this memo is to provide an understanding of the underlying market and economic conditions that will influence successful implementation of plans for the West Main TOD district.

This memorandum is organized in the following sections:

(I) Key Findings

(II) Project Background

(III) Data Sources

(IV) Market Area Description

(V) Population Trends

(VI) Residential Market Conditions and Forecast

(VII) Commercial Market Conditions and Forecast

(II) Project Background:

The City of Medford (herein termed "the City") is developing a long-range plan for the West Main TOD district with OTAK's assistance. The West Main TOD is one of four designated TOD districts within the Medford Urban Growth Boundary (UGB) and is an important component of the Rouge Valley Transportation System Plan and the Medford Transportation Plan. The principal goal of the plan is to stimulate development of transit-supportive land uses in the vicinity of TOD districts in an effort to encourage transit usage and reduce the total number of vehicle miles traveled.

This market study supports the City's planning process for the West Main TOD district by analyzing the existing conditions and forecasting future conditions so likely growth can be anticipated by the City and directed, through policies and capital improvements, to help achieve a transit supported development form. Because homebuyers and residential or commercial tenants would not strictly observe the TOD district boundaries when looking for an appropriate residence or commercial space, this market analysis evaluates a larger area surrounding the TOD district where consumers would likely "shop" for space. This area is termed the Market Area.

(III) Project Approach

This planning study requires a twenty year forecast of demand for commercial and residential development. The approach used to complete these forecasts is to

- Understand what trends are driving the demand for real estate development in the market area now; and
- Anticipate how those trends are likely to change over the twenty year forecast period.

The data and methods used to complete the forecast focus on larger economic and demographic trends rather than more detailed and short-term indicators that would be more appropriate when assessing the feasibility of a project expected to enter the market in the next one to two years.

For example, land brought into the Medford UGB for residential use as a result of the Regional Problem Solving process will impact the demand for new housing within the Market Area because the increase in land supply will provide greater options to housing developers thereby diminishing the area's capture rate (or the amount of new development that occurs in the Market Area relative to the City of Medford). In essence, the Market Area's capture rate and quality and character of new development depend on its attractiveness for a particular use, relative to competitive areas in the City and the Medford region.

The initial focus of the report is on residential forecast. This is appropriate, because new commercial development opportunities in the area will be largely if not wholly driven by new household's moving into the area. These new households will increase the demand for retail services and goods.

(IV) Data Sources:

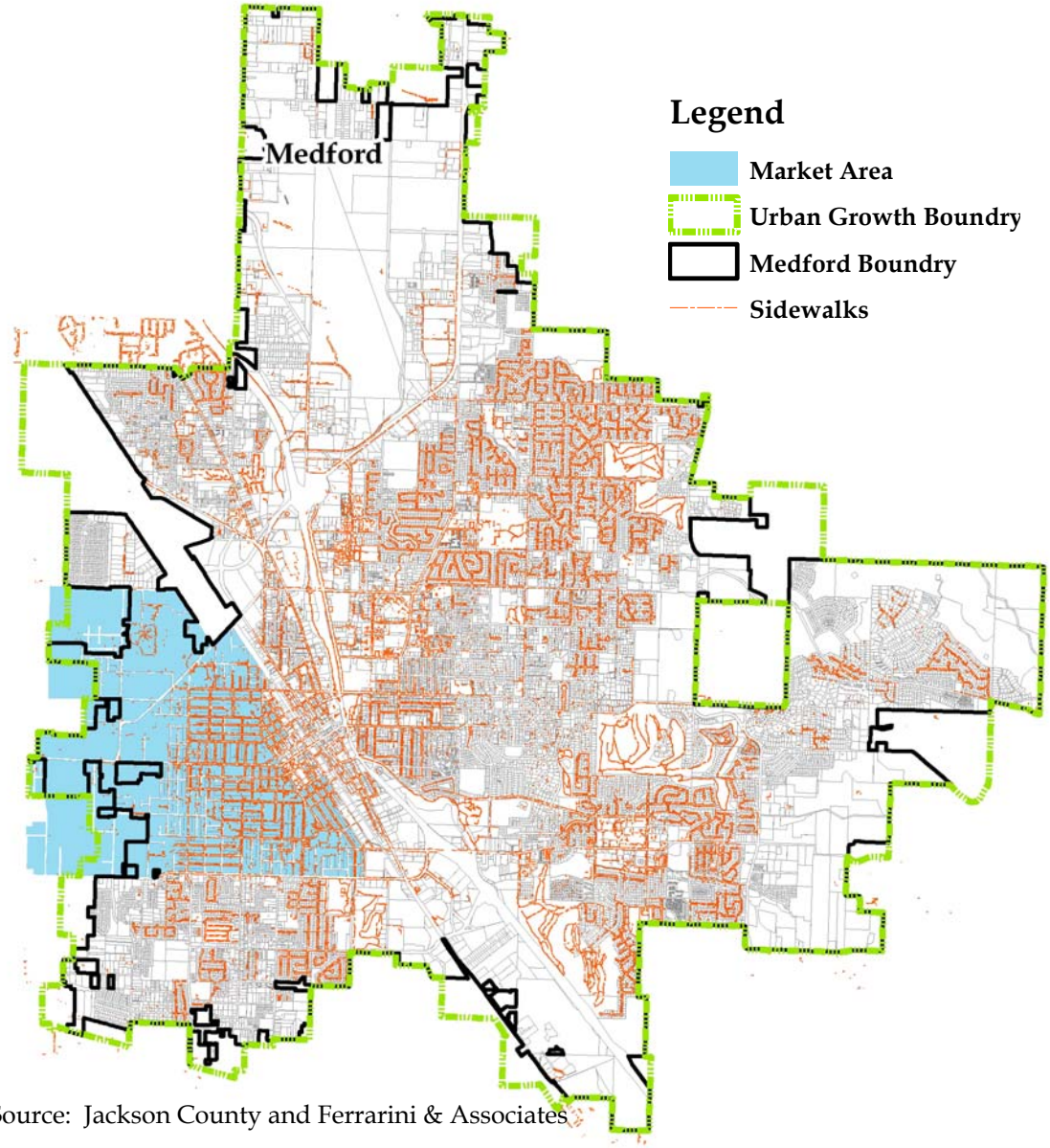
This analysis utilizes a variety of data sources to understand the existing conditions of the residential and commercial markets and forecast the growth and change that these markets are likely to experience in the future. Data from regional, state, and national sources were used, including:

- Population, employment and tax filing data from the U.S. Census, U.S. Internal Revenue Service, ESRI, State of Oregon, Portland State University Population Center, and Jackson County;
- National retail statistics from the Urban Land Institute;
- Residential sales data from the Multiple Listing Service (MLS) and Jackson County Assessor's office;
- Proposed future development and future opportunities that may be available from documents and interviews with the City of Medford and local real estate experts;
- Aerial reconnaissance of the study area;
- The City's Buildable Lands Inventory; and
- A comprehensive site visit that inventoried the existing businesses, and identified the physical characteristics of region and the Market Area.

(V) Market Area Description:

The Market Area encompasses the southwest portion of Medford, Oregon. As illustrated in Figure 1, its eastern boundary is delineated by Central Avenue, and it's northern, western, and southern boundaries are delimited by the Medford city limits and the Urban Growth Boundary (UGB).

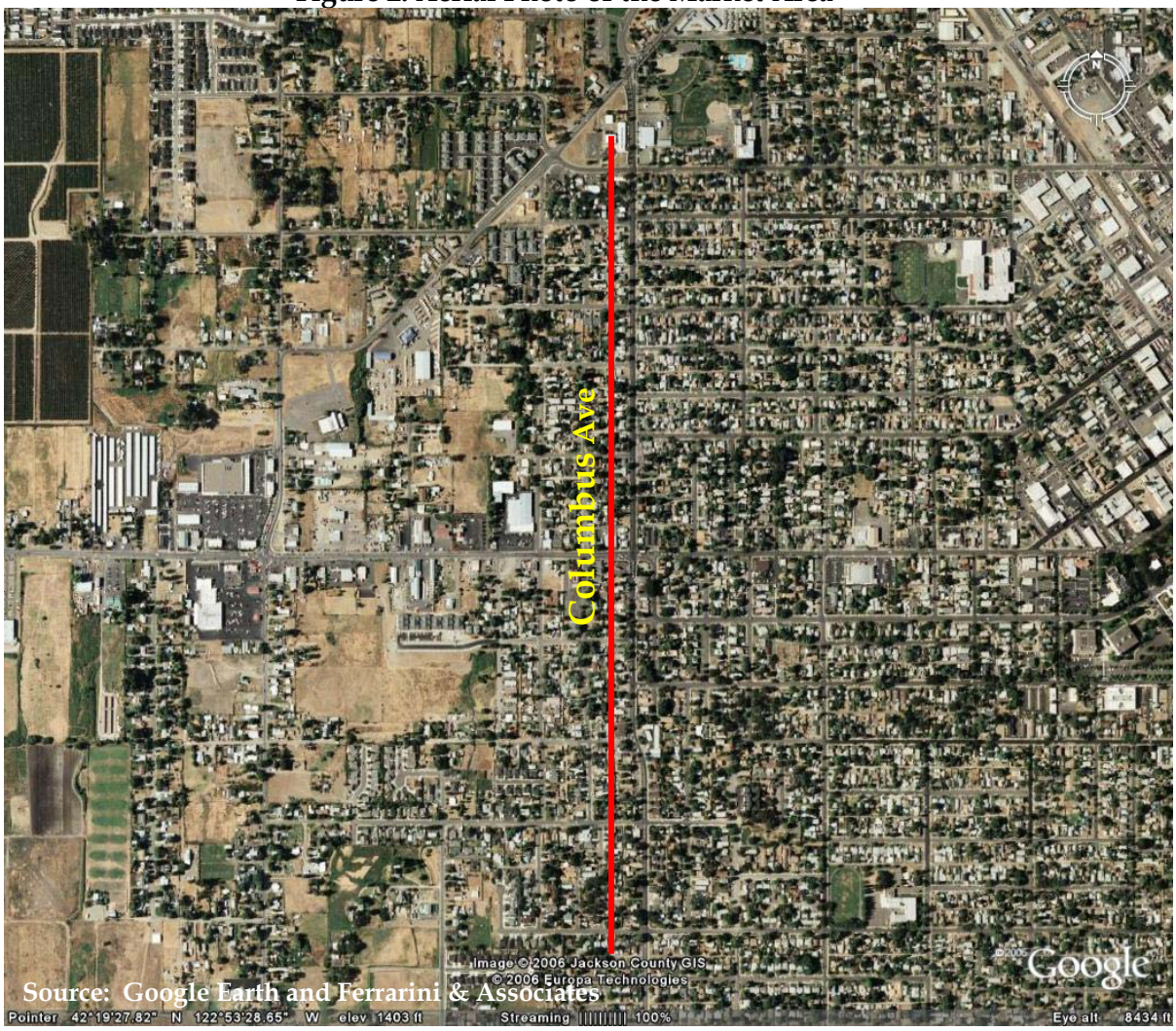
Figure 1: Market Area



Source: Jackson County and Ferrarini & Associates

The Market Area's built environment is generally characterized by urban levels of residential development west of Columbus Avenue, and rural residential and agricultural or vacant land west of Columbus Avenue. Portions of the Market Area west of Columbus Avenue were annexed into Medford in 2002 and 2003. Consequently, the area was developed at densities consistent with the County's planning and zoning policies, rather than City standards (Figure 2). This has resulted in large lot residential development without the urban infrastructure necessary to support more intensive urban development such as transportation network that supports pedestrian and vehicular connectivity.

Figure 2: Aerial Photo of the Market Area



Source: Google Earth and Ferrarini & Associates

Additionally, this area has several other characteristics typical of the urban fringe including:

- Underutilized parcels: Many of the homes and businesses are small structures on relatively large lots. This occurred because land was comparatively inexpensive when the area was developed and, as a result, there was little financial incentive for land owners to develop at densities or efficiencies typically found within city limits. Further, there was insufficient urban infrastructure necessary to support higher densities.

- Fragmented businesses: Many of the businesses that line Main Street are free standing older businesses that do not relate to each other, or reflect a cohesive district identity and therefore do not benefit much from cross shopping.

These factors create both opportunities and constraints for new development. The area is less aesthetically appealing and lacks adequate urban infrastructure compared to other areas, which has a dampening effect on demand. Further, land ownership is somewhat fragmented which complicates developer's ability to acquire parcels large enough to provide the economies of scale that create efficient residential production. However, the low density pattern does offer a multitude of large underutilized parcels that could be tapped to satisfy regional residential development pressure caused by the scarcity and high price of vacant lands.

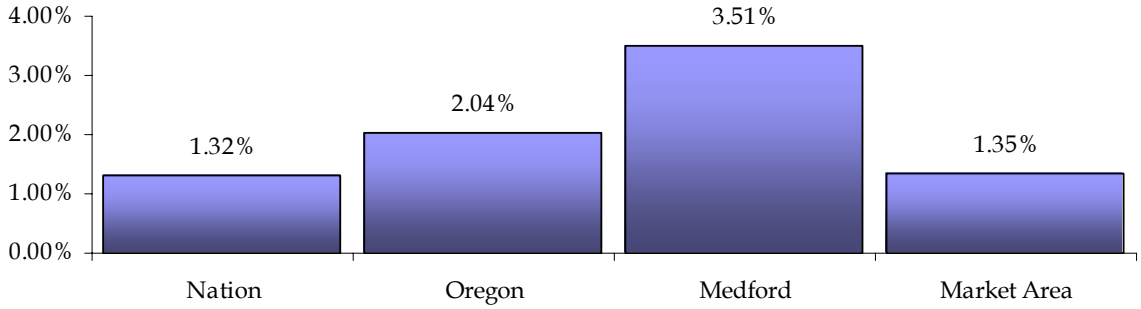
(VI) Population Trends

What follows in this section of the report are the major trends influencing the demand for residential real estate in the City of Medford, and ultimately the Market Area.

Population Trends

Population growth in the City between 1990 and 2000 was strong, increasing at an average growth rate of 3.5% annually. As illustrated below, this rate of growth exceeded national and state growth rates during the same time period (Figure 3). This growth has been significant. Population growth is the primary driver for new household and commercial demand in the Medford market.

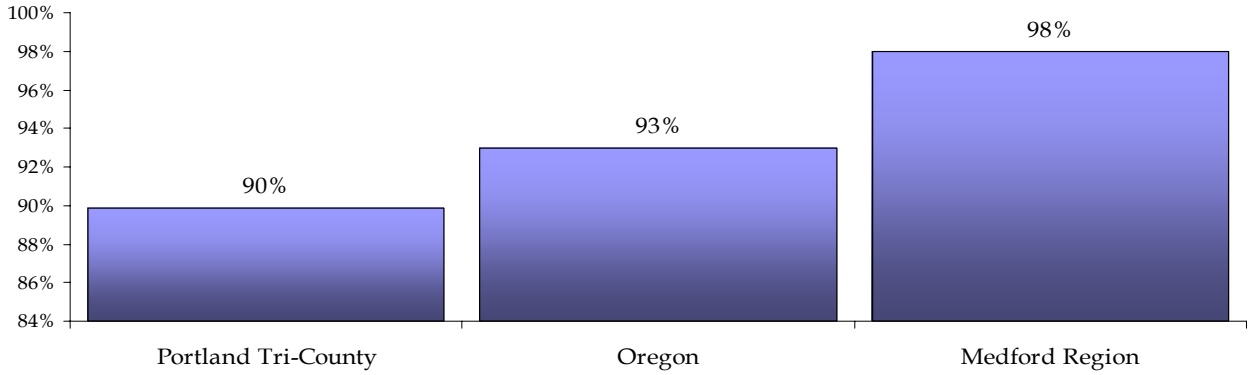
Figure 3: Comparative Population Growth



Source: US Census and Ferrarini & Associates

Population growth in Medford was primarily driven by in-migration, which has accounted for 98% of the population in the Medford region (Figure 4). In fact, Medford has a much higher proportion of population growth derived from in-migration than both the State of Oregon, in general, and the more urbanized Portland Tri-County area.

Figure 4: Population Growth Attributed to In-migration



Source: IRS and Ferrarini & Associates

New residents are drawn to Medford because of its excellent climate, health care, and low housing costs relative to other areas where residents are coming from, principally California. The region is recognized as an attractive retirement destination for these reasons.

All things being equal, the Market Area would have been expected to grow at the same rate as the City during the 1990s. However, population growth within the market area was comparatively modest, averaging 1.35% annually. Two factors contributed to this area's slow growth:

1) East Medford has captured most of the City's population growth in recent years; and,
2) Portions of the Market Area were not incorporated in the City, which restricted the types of development possible due to zoning restrictions, fragmented land ownership, and the unavailability of adequate urban infrastructure.

The Market Area has also not held significant appeal for in-migrants looking for a place to retire. The quality of the built environment can be relatively poor compared to other areas, which can be a big deterrent to safety conscious older buyers. Consequently, the Market Area has a younger population base, with a higher percentage of the population under the age of 18 and smaller percentage of the population over the age of 65 than the City or Medford in general (Table 1).

Table 1: Demographic Characteristics

	Oregon		Medford		Market Area	
	1990	2000	1990	2000	1990	2000
Population	2,842,321	3,421,399	46,951	63,436	12,597	14,294
Population White	93%	86%	95%	90%	92%	83%
Population of Hispanic Origin	2%	8%	3%	9%	5%	18%
Population <18	-	27%	-	27%	-	30%
Population >65	-	13%	-	17%	-	10%
Population >25 with some education beyond High School	-	58%	-	53%	-	38%
Per Capita Income	-	$20,940	-	$20,170	-	$12,497
Students that Receive a Free or Reduced Lunch (poverty indicator)	-	≈40%[1]	-	50%[2]	-	77%[3]

Source: US Census and Ferrarini & Associates

Ethnic Diversity

Another distinguishing characteristic of the market area is that it has a greater concentration of Hispanic household than the City and the growth of that demographic group is occurring at a faster rate. This trend is influencing the demand for retail space and housing in the Market Area. Several successful retail stores offering specialty goods targeted towards Hispanic consumers have been established. In addition, Hispanic households have larger household sizes, which had driven the demand for larger, but modestly priced homes in the area.

Income and Educational Attainment

The Market Area population is less affluent and educated then the City of Medford, and Oregon, in general (Table 1). Lower income renters and home owners are attracted to the area because it is relatively more affordable than other parts of Medford. The area's relatively low incomes, and associated indicators, suggest that the population doesn't have significant discretionary income or purchasing power for retail goods, and rental or ownership housing. Further, lower levels of educational attainment indicate that it will be more difficult for Market Area residents to attain income levels closer to the State median in the future compared to the average Oregonian or Medford resident (Table 1).

The low income character of the Market Area inhibits production of new housing. Fewer Market Area households are income qualified to obtain a home loan than the City's broader population. In addition, this dynamic deters in-migrants from selecting a home in the Market Area because most people who have the choice tend to segregate into areas where the population has similar socioeconomic position as themselves.

[1] Estimates from the State of Oregon, confirmed by the Northwest Area Foundation for 2004.
[2] Represents the average for elementary schools in the Medford School District.
[3] Represents the average for elementary schools within the Market Area.

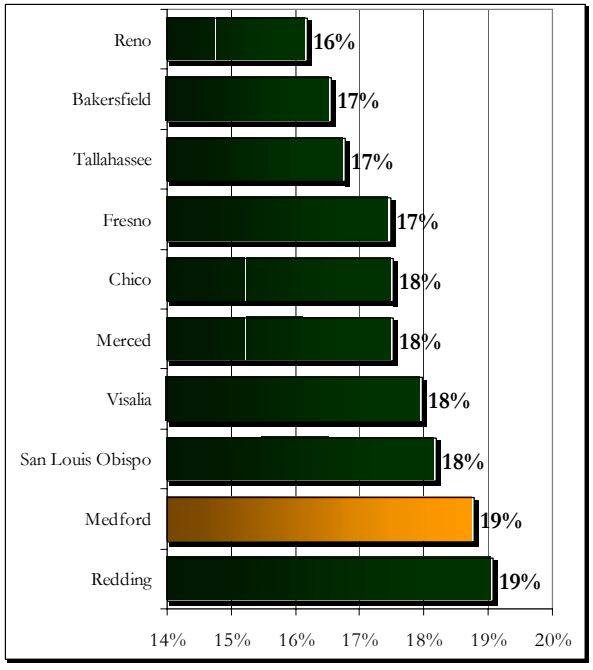
However, the low income character of the area does offer a long-term opportunity for developers to generate higher density housing products. Lower income families housing choices are constrained by their inability to afford the variety of options available to median income families. Apartments, condominiums, townhouses, and duplexes can offer lower priced housing options then single-family detached homes because the land basis of production costs is lower. Developers often target these product types to lower income market segments.

(VII) Residential Market

Housing prices in Jackson County and the City of Medford have experienced considerable appreciation, averaging 84% from 2000 to 2005. During this time, stronger than average appreciation was driven by unusually strong demand coupled with limited supply.

Demand was unusually strong because of historically low interest rates, the continued influx of new residents to the area, and because a huge number of speculative investors sought short term gains in the real estate market in Medford. In fact the City of Medford was found to have the second highest number of investors in the country based on a study completed in 2005. The results of this study are shown below in Figure 5.

Figure 5: Percent of Homes Purchased as Investments (2005)



On the supply side, the City of Medford's residential land supply is limited, which coupled with strong demand, resulted in land values and subsequently housing values being bid up at rates far in excess of inflation.

More recent data shows the exceptionally strong market has cooled and a minor correction is currently occurring. The correction is mainly due to people adjusting prices to better reflect the underlying values and the fact that the speculative investor bubble has burst and many homes purchased on speculation are back on the market.

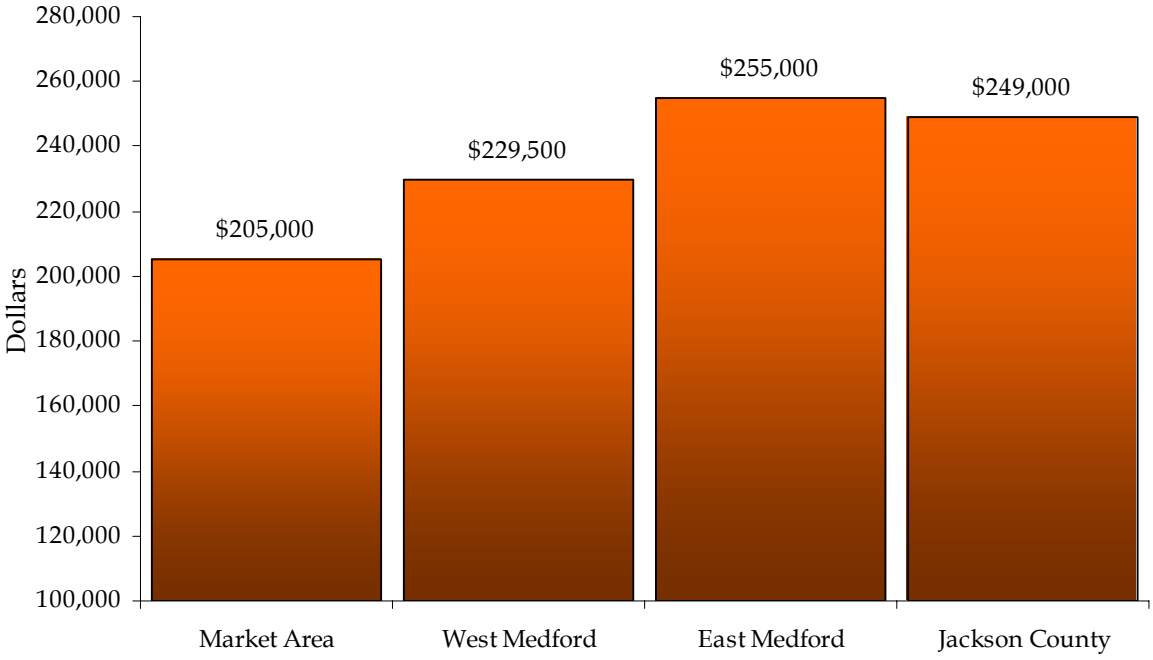
Despite these short-term issues, Medford will likely continue to experience population growth which, coupled with a land supply constrained by the UGB, will help to maintain upward pressure on housing prices in the long-term. However, the long-term trend will most likely reflect sustainable price increases at levels more consistent with historic trends.

Regional housing price increases have driven increased demand for housing in the Market Area, where prices have remained relatively affordable for both ownership and rental product.

During 2006, median home sales prices within the Market Area[4] were approximately 20% below the median sales price for East Medford, and 11% below the 2006 median home price in the broader West Medford area (Figure 6). Currently, the median housing price in the Market Area is $205,000 although there are homes available for as little as $170,000.

[4] Sales prices within the Market Area are from 1/1/2006 to present. Because sales could not be retrieved for the specific boundary for the Market Area, sales for homes within the three elementary school districts inside the Market Area were used as a proxy.

Figure 6: Median Residential Sales Prices (2006)



Source: Jackson County Multiple Listing Service and Ferrarini & Associates

Rental housing in the market area is also more affordable than the City average. In 2000, 93% of rental units leased for less than $600 per month, compared to 66% of rental units within the City, in general. The area also has a proportionately larger share of rental housing stock, with 52% of homes occupied by renters, compared to 43% in the City at large.

Market Area housing is more affordable due to a variety of factors: 1) housing stock is older; and, 2) the area lacks urban infrastructure; and 3) the poor condition of some buildings make the area less aesthetically appealing than other areas of the City.

Over 60% of residences in the Market Area were built prior to 1960, compared to only 26% of residences citywide (Table 2). Many of these older homes in the Market Area are in dilapidated condition. A dilapidated housing unit has a negative effect on the pricing of the unit itself and, together with other dilapidated units, degrades the price of other nearby housing because it diminishes the overall aesthetic appeal of an area.

Table 2: Housing Characteristics

	Oregon	Medford	Market Area
Ownership Status			
Owner Occupied	64%	57%	48%
Renter Occupied	36%	43%	52%
Unit Type			
Single Family	64%	64%	63%
Townhomes/Duplexes	10%	15%	23%
Multifamily	15%	15%	7%
Mobile Homes	2%	2%	2%
Housing Quality			
Built Before 1960	31%	26%	61%
Rentals Less Than $600 a month	60%	66%	93%

Source: US Census and Ferrarini & Associates

In addition, the area does not offer competitive urban infrastructure and neighborhood amenities typically found in other areas in terms of performance and quality, such as pedestrian facilities, a connected street network and parks. These factors decrease home prices in the Market Area because urban infrastructure is essential to fostering a coherent neighborhood and district identity.

Depth of Residential Demand

What follows is a description of the likely residential development opportunities that are expected to occur within the market area. The goals of this section are to (1) forecast the household growth in the Market Area and understand when vacant and buildable land will be developed, and (2) determine the likely form that the development will take. Both of these goals are accomplished by understanding how historic trends in the City of Medford interact with factors that will influence the rate and type of development that will occur within the Market Area.

The Market Area is anticipated to experience significant and prolonged demand as a result of regional population growth. Based on the City's most recent estimate, Medford's population is expected to grow at an average annual rate of 2.16% over the next 20 years (Table 3). In other words, Medford is expected to experience demand for 726 units annually, on average, during the next twenty years. During the 2007 – 2011, the population and household growth rate will decrease from the previous period because the volume of housing transactions during from 2002 – 2006 was inflated by speculative investment and unprecedented access to mortgage financing. However, the long-term forecast assumes a sustainable level of growth consistent with longer-=term historic trends. This estimate also assumes that the number of persons per household will decline during the next twenty years consistent given Medford's shift from a resource-based economy to a retirement and tourism oriented economy.

Table 3: Anticipated Household Growth

	2002 - 2006[1/]	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Forecasted Population	72,387	80,559	89,654	99,775	111,040
Net Population Growth	-	8,172	9,095	10,121	11,264
Persons Per/HH	2.69	2.68	2.67	2.66	2.65
Net New Households	**3,070**	**3,049**	**3,406**	**3,805**	**4,251**
Avg. Annual Demand	**614**	**610**	**681**	**761**	**850**

[1/] Based on building permit data from the US Census from 2002 -2006.

Source: Jackson County and Ferrarini & Associates

The Market Area is expected to capture a notable share of regional population and household growth given its affordable land prices and proximity to downtown. The share of the region's new housing demand that is anticipated to be captured by the Market Area will depend, in part, on the level of public investment in the area. Therefore, this analysis considers two scenarios:

1. Baseline Improvement Scenario: This scenario assumes only minimal public investment is made to meet level-of-service standards for infrastructure. Under this scenario, the capture rate for the Market Area relative to the City-at-large would be consistent with historic trends. Building permit data indicates that from 2001 to 2005 the Market Area captured approximately 10% of new housing starts, which serves as the baseline in this scenario.

2. Enhanced Improvement Scenario: This scenario assumes the City will improve the aesthetic appeal in the Market Area by adding walking paths, sidewalks, street trees, parks, and/or transportation enhancements. Under this scenario, the Market Area would be more competitive with other areas in Medford and the capture rate would increase to 15%[5].

Table 4 describes the capture rate and estimated housing demand for both scenarios. Under both scenarios, the capture rate will increase over time due to three factors: 1) the area will become more aesthetically attractive as new development occurs and a more complete neighborhood is established; 2) the area's proximity to downtown will be increasingly be seen as a competitive advantage as the region grows; and, 3) very little new land is expected to be added to the City through the RPS process that will serve low to modest income households, like those attracted to the Market Area currently. As we understand it, most land that is being considered under the RPS process is located in East Medford and will likely appeal to more affluent households. This land will therefore do little to alleviate the need for more low and moderate (workforce) housing in the City. Although we have no doubt that other land will be added to other

[5] Capture rates were confirmed through expert interviews with Medford area brokers and developers.

jurisdictions in Jackson County that will serve the same market that is being served within the Market Area, this land is likely to be located further from jobs, services, and amenities (e.g. Downtown Medford, the central city commercial centers).

Table 4: Future Housing Demand in the Market Area (2002 – 2026)

	Net Housing Demand				
	2002-2006	**2007-2011**	**2012-2016**	**2017-2021**	**2022-2026**
Citywide Housing Demand	3,070	3,049	3,406	3,805	4,251
Scenario 1 Market Area - Baseline Improvements					
Capture Rate	10%	10%	12%	12%	12%
Total Housing Demand	307	305	409	457	510
Avg. Annual Housing Demand	61	61	82	91	102
Scenario 2 Market Area – Enhanced Improvements					
Capture Rate	-	15%	17%	17%	17%
Total Housing Demands	-	457	579	647	723
Avg. Annual Housing Demand		91	116	129	145

Source: Ferrarini & Associates

The Market Area cannot accommodate all of the housing demand forecasted for the next twenty years because the supply of land is constrained. Based on the City of Medford's recent inventory of vacant and buildable land, the Market Area can accommodate between 591 and 668 housing units[6]. Therefore, the Market Area is anticipated to reach build out in eight to eleven years, under Scenario 1, or six to nine years under Scenario 2.

Form and Character of Future Residential Development

The purpose of forecasting the form and character of future residential development is to identify whether land uses that would support implementation of the West Main TOD district are likely to be generated by the market. This component of the residential forecast was accomplished by evaluating past and present trends, reviewing scholarly literature on consumer housing preferences, and confirming findings through expert interviews.

Single-family detached homes have been the dominant unit type produced by the Medford market in recent years. An analysis of the type of housing developed in the City from 2000 to 2006 was conducted by evaluating building permits issued during this period. It was found that the market produced the following mix of structure types during this time period:

- Single Family Homes 98%
- Townhomes/Duplexes 2%
- Structures w/ two or more units 0%

[6] Because multifamily development is allowed on commercially zoned land a range was established to estimate the percentage of commercial land that would likely be developed as multifamily housing. A range of 7% - 15% was used based on a recent land use survey, and confirmed by expert interviews.

It is anticipated that, in the future, the City's housing mix will become more diverse as a larger share of townhomes, duplexes, and multifamily structures are produced by the market. This dynamic will occur in response to growth and diversifying consumer preferences. Several recent national consumer surveys found that, while single family homes are still the dominant consumer preference, a small but significant percentage of consumers prefer denser forms of housing (Table 5)[7]. This shift is influenced both by empty nesters who are motivated to have a more urban lifestyle, and price conscious young buyers without children. It is anticipated that demand for different unit types in Medford will begin to reflect these survey findings as the market becomes more mature.

Table 5: Summary of Consumer Housing Preference Surveys

Survey	Single-Family Detached	Townhouse	Duplex	Condomin-ium
Fannie Mae National Housing Survey (1997)	71%	15%	10%	*
National Home Builders Association Survey (1996)	71%	*	*	14%
Mature Markets Study (1997)	71%	*	*	9%
Professional Builder Survey (1998)	77%	*	*	*
National Home Builders Association Survey (1999)	88%	17%	*	*

Notes: (*) not cited

Table 6 describes the anticipated housing mix in the Market Area from 2007 – 2026 for ownership and rental housing starts for Scenario 1 (Baseline Improvements). Table 7 displays similar information for Scenario 2 (Enhanced Improvements). Both forecasts for the Market Area indicate that the rate and character of development support for the TOD concept since both scenarios show the area becoming denser.

These housing mix estimates are based on several key assumptions. Based on historical Census data, approximately 30% of housing starts in the City are developed as rentals and approximately 70% of built for owner occupancy. For ownership housing, this analysis assume that housing demand in the Market Area will shift from the baseline conditions to those expressed in the consumer preference surveys cited above by 2026. Less certain information is available to predict the mix of housing types intended for the rental market compared to the ownership market. Therefore, the analysis of unit mix for rental housing relies more heavily on data obtained through expert interviews.

[7] Myers, Dowell and Elizabeth Gearin, "Current Preferences and Future Demand for Denser Residential Environments". Housing Policy Debate, Volume 12, Issue 4, 2001.

Table 6: Anticipated Unit Mix by Tenure in Market Area
Scenario 1: Baseline Improvements

	2000 - 2006		2007 - 2011		2012 - 2016		2017 - 2021		2022 – 2026	
	%	#	%	#	%	#	%	#	%	#
Total New Demand	-	307	-	305	-	409	-	457	-	510
Total Rental Demand	*30%*	92	*30%*	91	*30%*	123	*30%*	137	*30%*	153
Single Family Detached	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0
Townhome/Duplex	*47%*	43	*45%*	41	*40%*	49	*35%*	48	*30%*	46
Multifamily Home	*53%*	49	*55%*	50	*60%*	74	*65%*	89	*70%*	107
Subtotal	*100%*	92	*100%*	91	*100%*	123	*100%*	137	*100%*	153
Total Ownership Demand	*70%*	307	*70%*	305	*70%*	409	*70%*	457	*70%*	510
Single Family Detached	*98%*	211	*92%*	196	*86%*	246	*80%*	256	*75%*	268
Townhome/Duplex	*2%*	4	*5%*	11	*9%*	26	*12%*	38	*15%*	54
Multifamily Home	*0%*	0	*3%*	6	*5%*	14	*8%*	26	*10%*	36
Subtotal	*100%*	215	*100%*	213	*100%*	286	*100%*	320	*100%*	357
Total Unit Mix										
Single Family Detached	*69%*	211	*64%*	196	*60%*	246	*56%*	256	*53%*	268
Townhome/Duplex	*16%*	48	*17%*	52	*18%*	75	*19%*	86	*20%*	99
Multifamily Home	*16%*	49	*19%*	57	*22%*	88	*25%*	115	*28%*	143
Total	*100%*	307	*100%*	305	*100%*	409	*100%*	457	*100%*	510

Table 7: Anticipated Unit Mix by Tenure in Market Area
Scenario 2: Enhanced Improvements

	2000 - 2006		2007 - 2011		2012 - 2016		2017 - 2021		2022 – 2026	
	%	#	%	#	%	#	%	#	%	#
Total New Demand	-	307	-	457	-	579	-	647	-	723
Total Rental Demand	*30%*	92	*30%*	137	*30%*	174	*30%*	194	*30%*	217
Single Family Detached	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0
Townhome/Duplex	*47%*	43	*45%*	62	*40%*	69	*35%*	68	*30%*	65
Multifamily Home	*53%*	49	*55%*	75	*60%*	104	*65%*	126	*70%*	152
Subtotal	*100%*	92	*100%*		*100%*		*100%*	194	*100%*	217
Total Ownership Demand	*70%*	224	*70%*	320	*70%*	405	*70%*	453	*70%*	506
Single Family Detached	*98%*	220	*92%*	295	*86%*	349	*80%*	362	*75%*	379
Townhome/Duplex	*2%*	4	*5%*	16	*9%*	36	*12%*	54	*15%*	76
Multifamily Home	*0%*	0	*3%*	10	*5%*	20	*8%*	36	*10%*	51
Subtotal	*100%*	224	*100%*	320	*100%*	405	*100%*	453	*100%*	506
Total Unit Mix										
Single Family Detached	*69%*	220	*64%*	295	*60%*	349	*56%*	362	*53%*	379
Townhome/Duplex	*16%*	48	*17%*	78	*18%*	106	*19%*	122	*20%*	141
Multifamily Home	*16%*	49	*19%*	85	*22%*	124	*25%*	162	*28%*	202
Total	*100%*	316	*100%*	457	*100%*	579	*100%*	647	*100%*	723

Clearly, single family homes will remain the most attractive ownership option for residents. However, developers will over time begin to produce more dense forms of housing in an effort to keep the price of housing down and to respond to diversifying consumer demands. Increasing scarcity of vacant and buildable land *and* public investments in the Medford TOD district will increase land values; which, in turn, will likely accelerate densification in the Market Area, because developers will seek to capitalize on the higher cost basis of land by generating higher value products.

(VI) Commercial Market Conditions and Forecast

What follows is a description of the commercial market in the area. Several factors were considered in assessing the Market Area's commercial environment, including: current retail formation and format, vacancy rates, the range of lease rates achieved and how the quality of the retail environment impacts lease rates. This analysis also considers the types of office uses likely to locate in the area and the amount of office space that will likely be developed in the future.

The area includes a variety of retail businesses scattered along West Main Street, and a newer supermarket-anchored shopping center. West Main Street is an important retail corridor because commuters traveling from the Jacksonville to downtown Medford represent a higher-income customer base. Businesses in the Market Area are generally

targeted towards local residents and commuter traffic. A sample of local business types include along West Main Street and other parts of the Market Area include: grocery stores, general stores, gas stations, fast food restaurants, Hispanic specialty stores and restaurants. There are few existing offices within the Market Area, which tend to offer personal services.

The Market Area's Hispanic specialty stores fill an important niche in the region. These businesses are reported to draw customers from around the region in addition to serving the Market Area's sizable Hispanic population.

Vacancy rates for retail space in the market area are low, at approximately 5%, indicating a healthy retail environment. Additionally, area brokers reported that businesses located in some of the newer developments experienced relatively low turnover, another indication that the area offers an adequate customer base.

Absent from the market are regional serving retail formats, such as big box, large format electronic stores, home improvement stores and stores carrying high-end durable goods (e.g. furniture). Stores with this format benefit from clustering and regional accessibility because consumers typically prefer to cross-shop for these goods, and are willing to travel to purchase them.

Businesses located in the Market Area rely on automobile access and availability of off-street parking. Currently the Market Area lacks convenient and sometimes safe pedestrian access from one business to another. This creates an environment that promotes one-stop shopping at many of the isolated retail centers. However, the new Albertsons anchored shopping center, which offers a convenience to consumer by enabling customers to meet multiple shopping needs in one trip.

The physical condition and quality of buildings and retail environments in the Market Area creates a broad range of retail lease rates. The Market Area contains some of the regions lowest lease rates at $7.00 a sq/ft triple net (NNN) for older, dilapidated buildings, to some of the regions highest at $18.00 sq/ft, for new building within the Albertsons shopping center.

The lease rates that are being achieved in the Albertsons shopping center are a strong indication of the market's potential to support a quality retail environment that provides convenience to consumers. Should the area improve with enhanced aesthetic appeal and pedestrian access, additional opportunities to obtain higher lease rates, similar to those found at the Albertson's shopping center, will become possible. Locating compatible businesses within walking distance to one another will promote convenience for consumers and likely enhance the overall capture rate of the area.

In most markets, building owners with underperforming property have an incentive to improve their property to achieve a higher lease rate. This dynamic has not yet taken been observed in the market area, however it is likely to occur the future.

Commercial Demand Forecast

The commercial market will grow in reaction to growth in the residential market. These local demographic changes will result in greater demand for goods and services, and more diverse consumer preferences.

To forecast the retail opportunities within the area three steps were taken:

(1) First, the residential forecast for the Market Area is translated into a population projection using the expected number of persons per household for the area.

(2) Second, the amount of retail sales the new population is expected to generate is estimated using average per capita spending statistics from the U.S. Census Bureau. In order to not overestimate new retail sales, sales likely to occur outside the Market Area is factored into the analysis. This phenomenon is known as retail leakage occurs in every market area. In this case, sales from the market area will occur in nearby areas like the Rouge Valley Mall and at regional discount retailers like Costco and Wal-Mart.

(3) Finally the amount of new retail space that would be supported by new residents was determined by dividing the sales forecast for the Market Area by the average sales per square foot statistics published by the Urban Land Institute in "Dollars and Cents of Shopping Centers."

Under Scenario 1 (Baseline Improvement), the Market Area has the potential to add approximately 14,500 sq/ft of new commercial space by 2011[8]. The majority of the new commercial opportunities are expected to be for restaurants, with potential for additional variety stores, miscellaneous retail and sporting goods/hobby/music stores. Other likely tenants include neighborhood serving offices like real estate brokers, insurance agents, and potentially a variety of medical offices.[9]

Scenario 2 (Enhanced Improvement) would result in improved pedestrian access and aesthetic appeal which would likely raise the capture rate for retail purchases in the Market Area. It is estimated that, under this scenario, the Market Area can attract enough sales to support approximately 32,400 sq/ft of commercial space by 2011[10]. In addition to new population entering the area, civic improvements would increase the Market Area's attractiveness to residents living in other parts of the City. Therefore, potential sales were first calculated for Market Area's population increase and then adjusted by an additional 10%. The type of new retail opportunities are expected to be similar to the baseline analysis, but the rate of development is expected to become available in a much shorter time frame.

[8] See Appendix 2.07 & 2.08 for details on the likely amount of retail expenditures in five year intervals under Scenario 1.
[9] Based on observed trends and verified through interviews with development experts.
[10] See Appendix 2.09 & 2.10 for details on the likely amount of retail expenditures in five year intervals under Scenario 2.

APPENDIX 1.01

GROWTH TRENDS AND CAPTURE RATE
CITY OF MEDFORD AND MARKET AREA

	2002 - 2006[1/]	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Forecasted Population[2/]	72,387	80,559	89,654	99,775	111,040
Net Population Growth	-	8,172	9,095	10,121	11,264
Persons Per/HH	2.69	2.68	2.67	2.66	2.65
Net New Households	**3,070**	**3,049**	**3,406**	**3,805**	**4,251**

Estimated Number of Units in the Market Area

	2002 - 2006[1/]	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Baseline Forecast[3/]					
New Households	**307**	**305**	**409**	**457**	**510**
% of City Total	**10%[4/]**	**10%**	**12%**	**12%**	**12%**
Forecast With Improvements[5/]					
New Households	**-**	**457**	**579**	**647**	**723**
% of City Total	-	**15%**	**17%**	**17%**	**17%**

[1/] Total building permits from a five year period (2002-2006).

[2/] Population growth was determined by Jackson County's Proposed Update to the Population Element of the Comprehensive Plan, and assumes a AAGR of 2.16%.

[3/] Assumes only improvements needed to support new development are made to the area.

[4/] The capture rate for 2001-2005 was obtained through examining construction starts within the Market Area relative to the City of Medford using Jackson County Assessor's data and Geographic Information Systems analysis.

[5/] Assumes additional investment is made to infrastructure to improve the aesthetic appeal in the Market Area examples include the addition of walking paths, street trees, improved roads, and sidewalks.

Source: Jackson County, US Census, Local Area Experts and Ferrarini & Associates

APPENDIX 1.02

HOUSING FORECAST: BASELINE FORECAST
MARKET AREA

New Households[1/]

	2000-2006	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Housing Demand, Market Area	**307**	**305**	**409**	**457**	**510**
New Households Occupied by Rent	**30%**	**30%**	**30%**	**30%**	**30%**

Rental Unit Distribution[3/]

	2000-2006	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Single Family Home	0%	0%	0%	0%	0%
Townhome/Duplex	47%	45%	40%	35%	30%
Multifamily Home	53%	55%	60%	65%	70%
Total	100%	100%	100%	100%	100%

Number of Rental Units[4/]

	2000-2006	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Single Family Home	0	0	0	0	0
Townhome/Duplex	43	41	49	48	46
Multifamily Home	49	50	74	89	107
Total	**92**	**91**	**123**	**137**	**153**

APPENDIX 1.02

HOUSING FORECAST: BASELINE FORECAST
MARKET AREA

	New Households[1/]				
	2000-2006	**2007 - 2011**	**2012 - 2016**	**2017 - 2021**	**2022 - 2026**
Demand for New Units, Citywide	**307**	**305**	**409**	**457**	**510**
New Households Occupied by Own	**70%**	**70%**	**70%**	**70%**	**70%**

	Ownership Unit Distribution[3/]				
	2000-2006	**2007 - 2011**	**2012 - 2016**	**2017 - 2021**	**2022 - 2026**
Single Family Home	98%	92%	86%	80%	75%
Townhome/Duplex	2%	5%	9%	12%	15%
Multifamily Home[5/]	0%	3%	5%	8%	10%
Total	100%	100%	100%	100%	100%

	Number of Owner Units[4/]				
	2000-2006	**2007 - 2011**	**2012 - 2016**	**2017 - 2021**	**2022 - 2026**
Single Family Home	211	196	246	256	268
Townhome/Duplex	4	11	26	38	54
Multifamily Home	0	6	14	26	36
Total	**215**	213	286	320	357

APPENDIX 1.02

HOUSING FORECAST: BASELINE FORECAST
MARKET AREA

	Total Unit Distribution by Development Type				
	2000-2006	**2007 - 2011**	**2012 - 2016**	**2017 - 2021**	**2022 - 2026**
Single Family Home	211	196	246	256	268
Townhome/Duplex	48	52	75	86	99
Multifamily Home	49	57	88	115	143
Total	**307**	**305**	**409**	**457**	**510**

[1/] Per Appendix A

[2/] Tenure splits for new housing units was determined using historic data trends and building permit data for new development. This ratio is different than existing tenure in neighborhoods that considers tenure of all buildings.

[3/] The distribution for new units built in the 1990's was applied to new building permit data to distribute product types by tenure. Future forecast based on regional trends, national statistics from the Housing Policy Debate, expert interviews and this firms professional experience.

[4/] Total number of units multiplied by tenure split (owner or renter) and then multiplied by unit distribution.

[5/] In the Market Area multifamily home ownership is likely to be 2 to 4 story wood frame condominiums.

Source: Jackson County, US Census, Local Area Experts and Ferrarini & Associates

APPENDIX 1.03

HOUSING FORECAST: WITH IMPROVEMENTS
MARKET AREA

New Households[1/]

	2000-2006	2011	2016	2021	2026
New Households Occupied by Renters[2/]	**30%**	**30%**	**30%**	**30%**	**30%**
Net New Households	**307**	**457**	**579**	**647**	**723**

Rental Unit Distribution[3/]

	1990-2000 An. Avg.[3/]	2011	2016	2021	2026
Single Family Home	0%	0%	0%	0%	0%
Townhome/Duplex	47%	45%	40%	35%	30%
Multifamily Home	53%	55%	60%	65%	70%
Total	100%	100%	100%	100%	100%

Number of Rental Units[4/]

	2000-2006	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Single Family Home	0	0	0	0	0
Townhome/Duplex	43	62	69	68	65
Multifamily Home	49	75	104	126	152
Total	**92**	**137**	**174**	**194**	**217**

APPENDIX 1.03

HOUSING FORECAST: WITH IMPROVEMENTS
MARKET AREA

New Households[1/]

	2000-2006	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
New Households Occupied by Owners[2/]	**73%**	**70%**	**70%**	**70%**	**70%**
Net New Households	**2,006**	**2,011**	**2,016**	**2,021**	**2,026**

Ownership Unit Distribution[3/]

	2000-2006	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Single Family Home	98%	92%	86%	80%	75%
Townhome/Duplex	2%	5%	9%	12%	15%
Multifamily Home[5/]	0%	3%	5%	8%	10%
Total	100%	100%	100%	100%	100%

Number of Owner Units[4/]

	2000-2006	2007 - 2011	2012 - 2016	2017 - 2021	2022 - 2026
Single Family Home	220	295	349	362	379
Townhome/Duplex	4	16	36	54	76
Multifamily Home	0	10	20	36	51
Total	**224**	320	405	453	506

APPENDIX 1.03

HOUSING FORECAST: WITH IMPROVEMENTS
MARKET AREA

	Total Unit Distribution by Development Type				
	2000-2006	**2007 - 2011**	**2012 - 2016**	**2017 - 2021**	**2022 - 2026**
Single Family Home	220	295	349	362	379
Townhome/Duplex	48	78	106	122	141
Multifamily Home	49	85	124	162	202
Total	**316**	**457**	**579**	**647**	**723**

[1/] Per Appendix A

[2/] Tenure splits for new housing units was determined using historic data trends and building permit data for new development. This ratio is different than existing tenure in neighborhoods that considers tenure of all buildings.

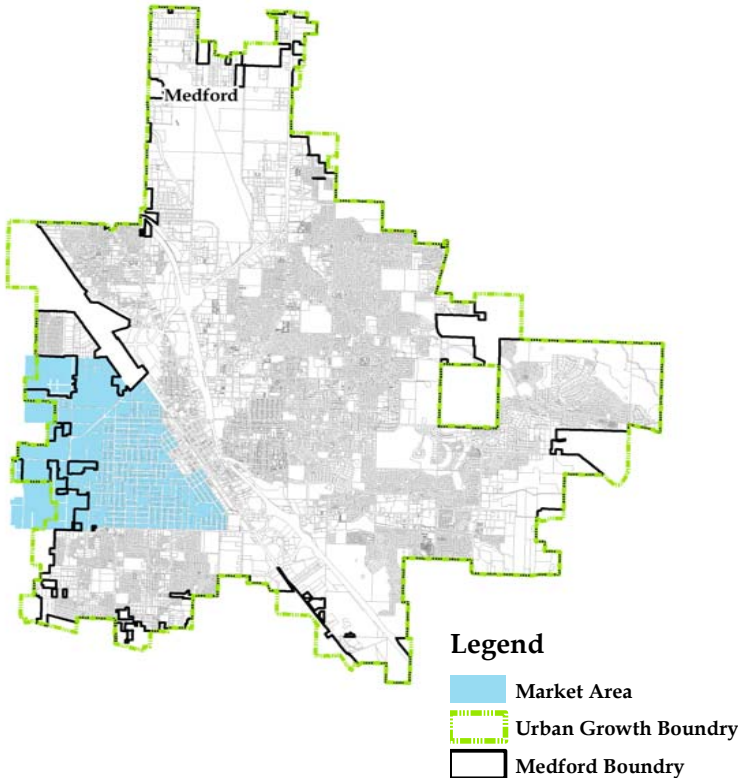
[3/] The distribution for new units built in the 1990's was applied to new building permit data to distribute product types by tenure. Future forecast based on regional trends, national statistics from the Housing Policy Debate, expert interviews and this firms professional experience.

[4/] Total number of units multiplied by tenure split (owner or renter) and then multiplied by unit distribution.

[5/] In the Market Area multifamily home ownership is likely to be 2 to 4 story wood frame condominiums.

Source: Jackson County, US Census, Local Area Experts and Ferrarini & Associates

APPENDIX 2.01
MAP OF PRIMARY TRADE AREA
MEDFORD, OREGON



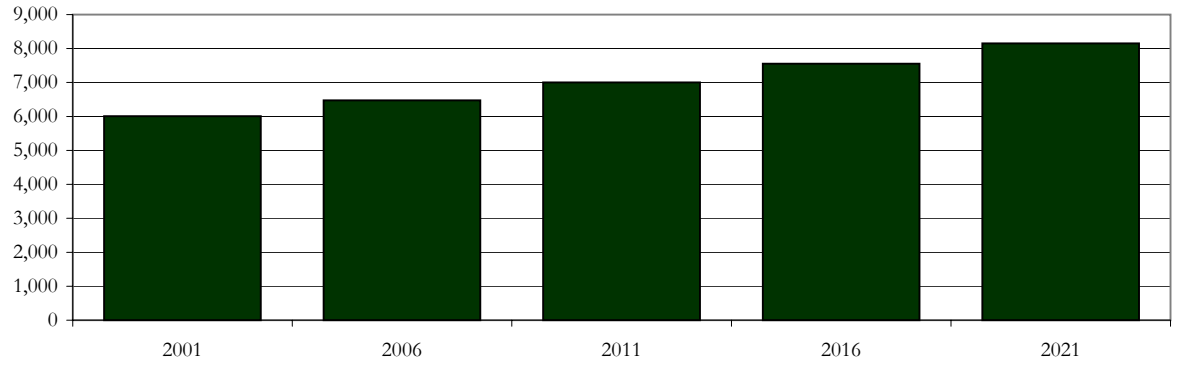
SOURCE: Jackson County, ESRI and Ferrarini & Associates

APPENDIX 2.02
GENERAL DEMOGRAPHIC PROFILE
PRIMARY TRADE AREA [1/]

Population and Households	1990 (Census)	2000 (Census)	Growth Rate 1990-2000	2006 (Est.)	Growth Rate 2000-2006	2011 (Proj.)	Growth Rate 2006-2011
Population	12,597	14,294	1.27%	15,391	1.24%	16,605	1.53%
Households	5,074	5,337	0.51%	5,714	1.14%	6,166	1.53%
Household Size	2.48	2.68	0.76%	2.69	0.09%	2.69	0.00%

Income[2/]	1989 (Census)	1999 (Census)	Growth Rate 1989-1999	2006 (Est.)	Growth Rate 1999-2006	2011 (Proj.)	Growth Rate 2006-2011
Per Capita ($)	$9,774	$12,897	2.81%	$14,605	1.79%	$16,880	2.94%
Median HH ($)	$19,306	$25,337	2.76%	$29,394	2.14%	$33,719	2.78%

GROWTH IN HOUSEHOLDS



[1/] Based on the following census tracts in Jackson County: 201-203; 800. Portions of Ceneus Tract 800 that were not within the PMA were excluded from this analysis.

[2/] Expressed in "current" dollars for each respective year.

SOURCE: 1990 & 2000 US Census, ESRI and Ferrarini & Associates.

APPENDIX 2.03
CURRENT AND PROJECTED POPULATION AND HOUSEHOLD GROWTH
PRIMARY TRADE AREA
2006-2026

Estimated Annual Population and Household Growth

	2006		2011		2016		2021		2026
	Total	AAGR [1/]	Total	AAGR [1/]	Total	AAGR [1/]	Total	AAGR [1/]	Total
Population [2/]									
Primary Trade Area	15,391	-----	16,605	1.53%	18,478	2.16%	20,561	2.16%	22,880
Households									
Primary Trade Area	5,714	-----	6,166	1.53%	6,920	2.34%	7,818	2.47%	8,868

1/ Average Annual Growth Rate

SOURCES: 2000 Census, ESRI and Ferrarini & Associates

APPENDIX 2.04
POTENTIAL RETAIL EXPENDITURES
AS A PERCENT OF TOTAL PERSONAL INCOME
JACKSON COUNTY

N.A.I.C.S. CATEGORY		
JACKSON COUNTY		**2002**
Population		187,600
Per Capita Income [1/]		$20,203
Total Personal Income ($1,000's)		$3,790,139
CATEGORY EXPENDITURES (1,000's) [2/]		
448	Total Apperal and Accessory Expenditures[3/]	$72,422
	Apperal and Acesories % Per Capita Income	1.9%
4413	Automobile Parts, Accessories, & Tire Stores	56856
	Automobile Parts, Accessories, & Tire % Per Capita Income	1.5%
444	Total Building Materials/Hardware Expenditures[2/]	$164,519
	Building Materials % Total Personal Income	4.3%
772	Total Drinking and Eating Establishment Expenditures[4/]	$240,245
	Eating and Drinking % Per Capita Income	6.3%
443	Total Electronic and Appliance Store Expenditures [2/]	$55,796
	Electronic and Appliance % Per Capita Income	1.5%
445	Total Food and Grocery Store Expenditures [2/]	$367,908
	Food and Grocery Store % Per Capita Income	9.7%
442	Total Furniture and Home Furnishings Expenditures[2/]	$53,541
	Furniture and Home Furnishings % Per Capita Income	1.4%
446	Total Health and Personal Care Store Expenditures[2/]	$60,476
	Health and Personal Care % Per Capita Income	1.6%
453	Total Miscellaneous Retail Store Expenditures[2/]	$74,316
	Miscellaneous % Per Capita Income	2.0%
451	Total Sporting Goods, Hobby, Book and Music Store Expenditures[2/]	$64,433
	Sports and Hobby % Per Capita Income	1.7%
452	Total Variety Store/General Merchandise Store Expenditures[2/]	$451,123
	Variety Store % Per Capita Income	11.9%

APPENDIX 2.05
RETAIL GOODS EXPENDITURE PROJECTIONS: POTENTIAL EXPENDITURES
PRIMARY TRADE AREA
2006-2026
(In Constant Dollars)

PRIMARY TRADE AREA

	2006	2011	2016	2021	2026
Per Capita Income [1/]	$14,605	$14,605	$14,605	$14,605	$14,605
x Percent Apperal and Accessories Expenditures	1.9%	1.9%	1.9%	1.9%	1.9%
xPercent Automotive Parts and Tire Expenditures [2/]	1.5%	1.5%	1.5%	1.5%	1.5%
x Percent Building Materials and Hardware Expenditures [2/]	4.3%	4.3%	4.3%	4.3%	4.3%
x Percent Eating and Drinking Expenditures [2/]	6.3%	6.3%	6.3%	6.3%	6.3%
x Percent Electronic and Appliance Expenditures [2/]	1.5%	1.5%	1.5%	1.5%	1.5%
x Percent Food and Grocery Store Expenditures [2/]	9.7%	9.7%	9.7%	9.7%	9.7%
x Percent Furniture and Home Furnishings Expenditures [2/]	1.4%	1.4%	1.4%	1.4%	1.4%
x Percent Health and Prsonal Care[2/]	1.6%	1.6%	1.6%	1.6%	1.6%
xPercent Miscellaneous Retail Expenditures [2/]	2.0%	2.0%	2.0%	2.0%	2.0%
xPercent Sporting Goods and Hobby Expenditures [2/]	1.7%	1.7%	1.7%	1.7%	1.7%
x Percent Variety/General Store Merchandise Store Expenditures [2/]	11.9%	11.9%	11.9%	11.9%	11.9%
=Per Person Expenditures	$6,403	$6,403	$6,403	$6,403	$6,153
x Number of Individuals in the Market [1/]	15,391	16,605	18,478	20,561	22,880
=Total Trade Area Expenditures	**$98,548,243**	**$106,321,459**	**$118,311,061**	**$131,652,700**	**$140,781,751**

1/ From Appendix 1.02
2/ From Appendix 1.04

SOURCE: Ferrarini & Associates

APPENDIX 2.06
PROJECTED AGGREGATE POTENTIAL EXPENDITUREs BY N.A.I.C.S.
PRIMARY TRADE AREA
2006, 20011, 2016, 2021, 2026

	2006	2011	2016	2021	2026
Primary Trade Area Population [1/]	15,391	16,605	18,478	20,561	22,880
Average Per Capita Income [1/] (in constant dollars)	$14,605	$14,605	$14,605	$14,605	$14,605
Aggregate Income ($000s) Primary Trade Area	$224,786	$242,516	$269,864	$300,296	$334,159

			2006		2011		2016		2021		2026	
NAICS	Category	Expenditure Distribution %	Aggregate Income ($000s)	Total Aggregate Expenditures	Aggregate Income ($000s)	Total Aggregate Expenditures	Aggregate Income ($000s)	Total Aggregate Expenditures	Aggregate Income ($000s)	Total Aggregate Expenditures	Aggregate Income ($000s)	Total Aggregate Expenditures
448	Apperal and Accessories	1.9%	$224,786	$4,295,204	$242,516	$4,633,998	$269,864	$5,156,562	$300,296	$5,738,054	$334,159	$6,385,120
4413	Automotive Parts, Accessories & Tire Stores	1.5%	$224,786	$3,372,015	$242,516	$3,637,991	$269,864	$4,048,238	$300,296	$4,504,747	$334,159	$5,012,736
444	Building Materials/ Hardware	4.3%	$224,786	$9,757,292	$242,516	$10,526,921	$269,864	$11,714,015	$300,296	$13,034,975	$334,159	$14,504,896
722	Eating and Drinking Establishments	6.3%	$224,786	$14,248,450	$242,516	$15,372,328	$269,864	$17,105,827	$300,296	$19,034,808	$334,159	$21,181,315
443	Electronic and Appliance Stores	1.5%	$224,786	$3,309,149	$242,516	$3,570,166	$269,864	$3,972,764	$300,296	$4,420,763	$334,159	$4,919,281
445	Food Stores	9.7%	$224,786	$21,819,886	$242,516	$23,540,979	$269,864	$26,195,636	$300,296	$29,149,652	$334,159	$32,436,784
442	Furniture and Home Furnishings	1.4%	$224,786	$3,175,409	$242,516	$3,425,877	$269,864	$3,812,205	$300,296	$4,242,097	$334,159	$4,720,468
446	Health and Personal Care	1.6%	$224,786	$3,586,710	$242,516	$3,869,620	$269,864	$4,305,988	$300,296	$4,791,563	$334,159	$5,331,895
453	Miscellaneous Retail Stores	2.0%	$224,786	$4,407,533	$242,516	$4,755,187	$269,864	$5,291,418	$300,296	$5,888,117	$334,159	$6,552,106
451	Sporting Goods, Hobby, Book and Music Stores	1.7%	$224,786	$3,821,392	$242,516	$4,122,813	$269,864	$4,587,732	$300,296	$5,105,079	$334,159	$5,680,766
452	Variety/General Stores	11.9%	$224,786	$26,755,201	$242,516	$28,865,578	$269,864	$32,120,677	$300,296	$35,742,844	$334,159	$39,773,474
				$98,548,243		**$106,321,459**		**$118,311,061**		**$131,652,700**		**$135,100,985**

[1/] PerAppendix 1.02

SOURCE: Ferrarini & Associates

APPENDIX 2.07
POTENTIAL LOCAL EXPENDITURES
PRIMARY TRADE AREA
2006, 20011, 2016, 2021, 2026
(In Constant Dollars)

2006

NAICS	Category	Total Aggregate Expenditures		Capture Rate[1/]		Gross Local Expenditures
448	Apparel and Accessory Stores	$4,295,204	*	25%	=	$1,073,801
4413	Automotive Parts, Accessories & Tire Stores	$3,372,015	*	30%	=	$1,011,605
444	Building Materials/ Hardware	$9,757,292	*	20%	=	$1,951,458
722	Eating and Drinking Establishments	$14,248,450	*	35%	=	$4,986,957
443	Electronic and Appliance Stores	$3,309,149	*	20%	=	$661,830
445	Food Stores	$21,819,886	*	60%	=	$13,091,932
442	Home Furnishings and Furniture	$3,175,409	*	20%	=	$635,082
446	Health and Personal Care Stores	$3,586,710	*	60%	=	$2,152,026
453	Miscellaneous Retail Stores	$4,407,533	*	25%	=	$1,101,883
451	Sporting Goods, Hobby, Book and Music Stores	$3,821,392	*	25%	=	$955,348
452	Variety/General Stores	$26,755,201	*	30%	=	$8,026,560
	Average			**32%**		
	Total	**$98,548,243**				**$35,648,483**

2011

NAICS	Category	Total Aggregate Expenditures		Capture Rate[1/]		Gross Local Expenditures
448	Apparel and Accessory Stores	$4,633,998	*	25%	=	$1,158,499
4413	Automotive Parts, Accessories & Tire Stores	$3,637,991	*	30%	=	$1,091,397
444	Building Materials/ Hardware	$10,526,921	*	20%	=	$2,105,384
722	Eating and Drinking Establishments	$15,372,328	*	35%	=	$5,380,315
443	Electronic and Appliance Stores	$3,570,166	*	20%	=	$714,033
445	Food Stores	$23,540,979	*	60%	=	$14,124,588
442	Home Furnishings and Furniture	$3,425,877	*	20%	=	$685,175
446	Health and Personal Care Stores	$3,869,620	*	60%	=	$2,321,772
453	Miscellaneous Retail Stores	$4,755,187	*	25%	=	$1,188,797
451	Sporting Goods, Hobby, Book and Music Stores	$4,122,813	*	25%	=	$1,030,703
452	Variety/General Stores	$28,865,578	*	30%	=	$8,659,674
	Average			**32%**		
	Total	**$106,321,459**				**$38,460,338**

APPENDIX 2.07
POTENTIAL LOCAL EXPENDITURES
PRIMARY TRADE AREA
2006, 20011, 2016, 2021, 2026
(In Constant Dollars)

2016

NAICS	Category	Total Aggregate Expenditures		Capture Rate[1/]		Gross Local Expenditures
448	Apparel and Accessory Stores	$5,156,562	*	25%	=	$1,289,140
4413	Automotive Parts, Accessories & Tire Stores	$4,048,238	*	30%	=	$1,214,471
444	Building Materials/ Hardware	$11,714,015	*	20%	=	$2,342,803
722	Eating and Drinking Establishments	$17,105,827	*	35%	=	$5,987,039
443	Electronic and Appliance Stores	$3,972,764	*	20%	=	$794,553
445	Food Stores	$26,195,636	*	60%	=	$15,717,382
442	Home Furnishings and Furniture	$3,812,205	*	20%	=	$762,441
446	Health and Personal Care Stores	$4,305,988	*	60%	=	$2,583,593
453	Miscellaneous Retail Stores	$5,291,418	*	25%	=	$1,322,854
451	Sporting Goods, Hobby, Book and Music Stores	$4,587,732	*	25%	=	$1,146,933
452	Variety/General Stores	$32,120,677	*	30%	=	$9,636,203
	Average			**32%**		
	Total	**$118,311,061**				**$42,797,413**

2026

NAICS	Category	Total Aggregate Expenditures		Capture Rate[1/]		Gross Local Expenditures
448	Apparel and Accessory Stores	$5,738,054	*	25%	=	$1,434,514
4413	Automotive Parts, Accessories & Tire Stores	$4,504,747	*	30%	=	$1,351,424
444	Building Materials/ Hardware	$13,034,975	*	20%	=	$2,606,995
722	Eating and Drinking Establishments	$19,034,808	*	35%	=	$6,662,183
443	Electronic and Appliance Stores	$4,420,763	*	20%	=	$884,153
445	Food Stores	$29,149,652	*	60%	=	$17,489,791
442	Home Furnishings and Furniture	$4,242,097	*	20%	=	$848,419
446	Health and Personal Care Stores	$4,791,563	*	60%	=	$2,874,938
453	Miscellaneous Retail Stores	$5,888,117	*	25%	=	$1,472,029
451	Sporting Goods, Hobby, Book and Music Stores	$5,105,079	*	25%	=	$1,276,270
452	Variety/General Stores	$35,742,844	*	30%	=	$10,722,853
	Average			**32%**		
	Total	**$131,652,700**				**$47,623,569**

APPENDIX 2.07
POTENTIAL LOCAL EXPENDITURES
PRIMARY TRADE AREA
2006, 20011, 2016, 2021, 2026
(In Constant Dollars)

2026

NAICS	Category	Total Aggregate Expenditures		Capture Rate[1/]		Gross Local Expenditures
448	Apparel and Accessory Stores	$6,385,120	-	25%	=	$1,596,280
4413	Automotive Parts, Accessories & Tire Stores	$5,012,736	-	30%	=	$1,503,821
444	Building Materials/ Hardware	$14,504,896	-	20%	=	$2,900,979
722	Eating and Drinking Establishments	$21,181,315	-	35%	=	$7,413,460
443	Electronic and Appliance Stores	$4,919,281	-	20%	=	$983,856
445	Food Stores	$32,436,784	-	60%	=	$19,462,070
442	Home Furnishings and Furniture	$4,720,468	-	20%	=	$944,094
446	Health and Personal Care Stores	$5,331,895	-	60%	=	$3,199,137
453	Miscellaneous Retail Stores	$6,552,106	-	25%	=	$1,638,026
451	Sporting Goods, Hobby, Book and Music Stores	$5,680,766	-	25%	=	$1,420,192
452	Variety/General Stores	$39,773,474	-	30%	=	$11,932,042
	Average			**32%**		
	Total	**$146,498,841**				**$52,993,958**

[1/] A capture rate was used to estimate the amount of purchases that would occur within the market area. The capture rate considers other retail options outside of the market area where residents who live within it may patronize.

SOURCE: US Economic Census and Ferrarini & Associates

APPENDIX 2.08
EXPECTED LEAKAGE IN: BASEINE FORECAST
PRIMARY TRADE AREA
2006, 2011, 2016, 2021, 2026
(In Constant Dollars)

2006

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Passthrough Traffic[2/]		Total Expenditures
448	Apparel and Accessory Stores	$1,073,801	*	10%	=	$1,181,181
4413	Automotive Parts, Accessories & Tire Stores	$1,011,605	*	10%	=	$1,112,765
444	Building Materials/ Hardware	$1,951,458	*	10%	=	$2,146,604
722	Eating and Drinking Establishments	$4,986,957	*	10%	=	$5,485,653
443	Electronic and Appliance Stores	$661,830	*	10%	=	$728,013
445	Food Stores	$13,091,932	*	10%	=	$14,401,125
442	Home Furnishings and Furniture	$635,082	*	10%	=	$698,590
446	Health and Personal Care Stores	$2,152,026	*	10%	=	$2,367,229
453	Miscellaneous Retail Stores	$1,101,883	*	10%	=	$1,212,072
451	Sporting Goods, Hobby, Book and Music Stores	$955,348	*	10%	=	$1,050,883
452	Variety/General Stores	$8,026,560	*	10%	=	$8,829,216
	Total	**$35,648,483**				**$39,213,331**

2011

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Passthrough Traffic[2/]		Total Expenditures
448	Apparel and Accessory Stores	$1,158,499	*	10%	=	$1,274,349
4413	Automotive Parts, Accessories & Tire Stores	$1,091,397	*	10%	=	$1,200,537
444	Building Materials/ Hardware	$2,105,384	*	10%	=	$2,315,923
722	Eating and Drinking Establishments	$5,380,315	*	10%	=	$5,918,346
443	Electronic and Appliance Stores	$714,033	*	10%	=	$785,436
445	Food Stores	$14,124,588	*	10%	=	$15,537,046
442	Home Furnishings and Furniture	$685,175	*	10%	=	$753,693
446	Health and Personal Care Stores	$2,321,772	*	10%	=	$2,553,949
453	Miscellaneous Retail Stores	$1,188,797	*	10%	=	$1,307,676
451	Sporting Goods, Hobby, Book and Music Stores	$1,030,703	*	10%	=	$1,133,774
452	Variety/General Stores	$8,659,674	*	10%	=	$9,525,641
	Total	**$38,460,338**				**$42,306,371**

APPENDIX 2.08
EXPECTED LEAKAGE IN: BASEINE FORECAST
PRIMARY TRADE AREA
2006, 2011, 2016, 2021, 2026
(In Constant Dollars)

2016

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Passthrough Traffic[2/]		Total Expenditures
448	Apparel and Accessory Stores	$1,289,140	*	10%	=	$1,418,055
4413	Automotive Parts, Accessories & Tire Stores	$1,214,471	*	10%	=	$1,335,918
444	Building Materials/ Hardware	$2,342,803	*	10%	=	$2,577,083
722	Eating and Drinking Establishments	$5,987,039	*	10%	=	$6,585,743
443	Electronic and Appliance Stores	$794,553	*	10%	=	$874,008
445	Food Stores	$15,717,382	*	10%	=	$17,289,120
442	Home Furnishings and Furniture	$762,441	*	10%	=	$838,685
446	Health and Personal Care Stores	$2,583,593	*	10%	=	$2,841,952
453	Miscellaneous Retail Stores	$1,322,854	*	10%	=	$1,455,140
451	Sporting Goods, Hobby, Book and Music Stores	$1,146,933	*	10%	=	$1,261,626
452	Variety/General Stores	$9,636,203	*	10%	=	$10,599,823
	Total	**$42,797,413**				**$47,077,154**

2021

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Passthrough Traffic[2/]		Total Expenditures
448	Apparel and Accessory Stores	$1,434,514	*	10%	=	$1,577,965
4413	Automotive Parts, Accessories & Tire Stores	$1,351,424	*	10%	=	$1,486,567
444	Building Materials/ Hardware	$2,606,995	*	10%	=	$2,867,694
722	Eating and Drinking Establishments	$6,662,183	*	10%	=	$7,328,401
443	Electronic and Appliance Stores	$884,153	*	10%	=	$972,568
445	Food Stores	$17,489,791	*	10%	=	$19,238,770
442	Home Furnishings and Furniture	$848,419	*	10%	=	$933,261
446	Health and Personal Care Stores	$2,874,938	*	10%	=	$3,162,432
453	Miscellaneous Retail Stores	$1,472,029	*	10%	=	$1,619,232
451	Sporting Goods, Hobby, Book and Music Stores	$1,276,270	*	10%	=	$1,403,897
452	Variety/General Stores	$10,722,853	*	10%	=	$11,795,139
	Total	**$47,623,569**				**$52,385,925**

APPENDIX 2.08
EXPECTED LEAKAGE IN: BASEINE FORECAST
PRIMARY TRADE AREA
2006, 2011, 2016, 2021, 2026
(In Constant Dollars)

		2026				
NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Passthrough Traffic[2/]		Total Expenditures
448	Apparel and Accessory Stores	$1,596,280	*	10%	=	$1,755,908
4413	Automotive Parts, Accessories & Tire Stores	$1,503,821	*	10%	=	$1,654,203
444	Building Materials/ Hardware	$2,900,979	*	10%	=	$3,191,077
722	Eating and Drinking Establishments	$7,413,460	*	10%	=	$8,154,806
443	Electronic and Appliance Stores	$983,856	*	10%	=	$1,082,242
445	Food Stores	$19,462,070	*	10%	=	$21,408,278
442	Home Furnishings and Furniture	$944,094	*	10%	=	$1,038,503
446	Health and Personal Care Stores	$3,199,137	*	10%	=	$3,519,051
453	Miscellaneous Retail Stores	$1,638,026	*	10%	=	$1,801,829
451	Sporting Goods, Hobby, Book and Music Stores	$1,420,192	*	10%	=	$1,562,211
452	Variety/General Stores	$11,932,042	*	10%	=	$13,125,246
	Total	**$52,993,958**				**$58,293,354**

1/ See Appendix 1.07

2/ Based on interviews wih variuos retial experts and the professional experience of Ferrarini & Asocitates

4/ One large store, such as a Walmart or Target may fill the demand of several smaller stores

SOURCE: US Economic Census and Ferrarini & Associates

APPENDIX 2.09
POTENTIAL SUPPORTABLE SQUARE FOOTAGE: BASELINE FORECAST
PRIMARY TRADE AREA
2011, 2016, 2021,2026
(In Constant Dollars)

2011

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$161,584	$168	962	3,600	**0**
4413	Automotive Parts, Accessories & Tire Stores	$87,772	$531	165	6,060	**0**
444	Building Materials/ Hardware	$169,318	$315	538	5,000	**0**
722	Eating and Drinking Establishments	$432,693	$233	1,857	1,820	**1**
443	Electronic and Appliance Stores	$57,424	$153	375	2,500	**0**
445	Food Stores	$1,135,921	$343	3,312	31,000	**0**
442	Home Furnishings and Furniture	$55,103	$163	338	4,500	**0**
446	Health and Personal Care Stores	$186,721	$513	364	10,000	**0**
453	Miscellaneous Retail Stores	$95,605	$166	576	1,764	**0**
451	Sporting Goods, Hobby, Book and Music Stores	$82,891	$147	564	2,288	**0**
452	Variety/General Stores	$696,424	$128	5,441	8,000	**0**
	Total	**$3,161,456**		**14,491**		**1**

2016

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$236,873	$168	1,410	3,600	**0**
4413	Automotive Parts, Accessories & Tire Stores	$223,153	$531	420	6,060	**0**
444	Building Materials/ Hardware	$430,479	$315	1,367	5,000	**0**
722	Eating and Drinking Establishments	$1,100,090	$233	4,721	1,820	**2**
443	Electronic and Appliance Stores	$145,995	$153	954	2,500	**0**
445	Food Stores	$2,887,995	$343	8,420	31,000	**0**
442	Home Furnishings and Furniture	$140,095	$163	859	4,500	**0**
446	Health and Personal Care Stores	$474,723	$513	925	10,000	**0**
453	Miscellaneous Retail Stores	$243,068	$166	1,464	1,764	**0**
451	Sporting Goods, Hobby, Book and Music Stores	$210,744	$147	1,434	2,288	**0**
452	Variety/General Stores	$1,770,607	$128	13,833	8,000	**1**
	Total	**$7,863,823**		**35,808**		**3**

APPENDIX 2.09
POTENTIAL SUPPORTABLE SQUARE FOOTAGE: BASELINE FORECAST
PRIMARY TRADE AREA
2011, 2016, 2021,2026
(In Constant Dollars)

2021

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$396,784	$168	2,362	3,600	**0**
4413	Automotive Parts, Accessories & Tire Stores	$373,802	$531	704	6,060	**0**
444	Building Materials/ Hardware	$721,090	$315	2,289	5,000	**0**
722	Eating and Drinking Establishments	$1,842,748	$233	7,909	1,820	**4**
443	Electronic and Appliance Stores	$244,555	$153	1,598	2,500	**0**
445	Food Stores	$4,837,645	$343	14,104	31,000	**0**
442	Home Furnishings and Furniture	$234,671	$163	1,440	4,500	**0**
446	Health and Personal Care Stores	$795,203	$513	1,550	10,000	**0**
453	Miscellaneous Retail Stores	$407,161	$166	2,453	1,764	**1**
451	Sporting Goods, Hobby, Book and Music Stores	$353,014	$147	2,401	2,288	**1**
452	Variety/General Stores	$2,965,922	$128	23,171	8,000	**2**
	Total	**$13,172,594**		**59,981**		**6**

2026

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$574,727	$168	3,421	3,600	**0**
4413	Automotive Parts, Accessories & Tire Stores	$541,438	$531	1,020	6,060	**0**
444	Building Materials/ Hardware	$1,044,473	$315	3,316	5,000	**0**
722	Eating and Drinking Establishments	$2,669,153	$233	11,456	1,820	**6**
443	Electronic and Appliance Stores	$354,229	$153	2,315	2,500	**0**
445	Food Stores	$7,007,153	$343	20,429	31,000	**0**
442	Home Furnishings and Furniture	$339,913	$163	2,085	4,500	**0**
446	Health and Personal Care Stores	$1,151,822	$513	2,245	10,000	**0**
453	Miscellaneous Retail Stores	$589,757	$166	3,553	1,764	**2**
451	Sporting Goods, Hobby, Book and Music Stores	$511,328	$147	3,478	2,288	**1**
452	Variety/General Stores	$4,296,030	$128	33,563	8,000	**4**
	Total	**$19,080,023**		**86,881**		**9**

[1/] This number represents the increased amount of retail expenditures above what the area is expected to currently support.

[2/] Per ULI's 2006 Dollars and Cents of Shopping Centers

[3/] This number is represents cummulative demand. It is also important to note that one large store, such as a Walmart or Target may fill the demand of several smaller stores.

APPENDIX 2.10
EXPECTED LEAKAGE IN
PRIMARY TRADE AREA
2006, 2011, 2016, 2021, 2026
(In Constant Dollars)

2006

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Pass-through Traffic[2/]		Increases Capture Rate With Improvements[3/]		Total Expenditures
448	Apparel and Accessory Stores	$1,073,801	*	10%	*	10%	=	$1,288,561
4413	Automotive Parts, Accessories & Tire Stores	$1,011,605	*	10%	*	10%	=	$1,213,926
444	Building Materials/ Hardware	$1,951,458	*	10%	*	10%	=	$2,341,750
722	Eating and Drinking Establishments	$4,986,957	*	10%	*	10%	=	$5,984,349
443	Electronic and Appliance Stores	$661,830	*	10%	*	10%	=	$794,196
445	Food Stores	$13,091,932	*	10%	*	10%	=	$15,710,318
442	Home Furnishings and Furniture	$635,082	*	10%	*	10%	=	$762,098
446	Health and Personal Care Stores	$2,152,026	*	10%	*	10%	=	$2,582,431
453	Miscellaneous Retail Stores	$1,101,883	*	10%	*	10%	=	$1,322,260
451	Sporting Goods, Hobby, Book and Music Stores	$955,348	*	10%	*	10%	=	$1,146,418
452	Variety/General Stores	$8,026,560	*	10%	*	10%	=	$9,631,872
	Total	**$35,648,483**						**$42,778,179**

2011

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Pass-through Traffic[2/]		Increases Capture Rate With Improvements[3/]		Total Expenditures
448	Apparel and Accessory Stores	$1,158,499	*	10%	*	10%	=	$1,390,199
4413	Automotive Parts, Accessories & Tire Stores	$1,091,397	*	10%	*	10%	=	$1,309,677
444	Building Materials/ Hardware	$2,105,384	*	10%	*	10%	=	$2,526,461
722	Eating and Drinking Establishments	$5,380,315	*	10%	*	10%	=	$6,456,378
443	Electronic and Appliance Stores	$714,033	*	10%	*	10%	=	$856,840
445	Food Stores	$14,124,588	*	10%	*	10%	=	$16,949,505
442	Home Furnishings and Furniture	$685,175	*	10%	*	10%	=	$822,210
446	Health and Personal Care Stores	$2,321,772	*	10%	*	10%	=	$2,786,127
453	Miscellaneous Retail Stores	$1,188,797	*	10%	*	10%	=	$1,426,556
451	Sporting Goods, Hobby, Book and Music Stores	$1,030,703	*	10%	*	10%	=	$1,236,844
452	Variety/General Stores	$8,659,674	*	10%	*	10%	=	$10,391,608
	Total	**$38,460,338**						**$46,152,405**

APPENDIX 2.10
EXPECTED LEAKAGE IN
PRIMARY TRADE AREA
2006, 2011, 2016, 2021, 2026
(In Constant Dollars)

2016

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Pass-through Traffic[2/]		Increases Capture Rate With Improvements[3/]		Total Expenditures
448	Apparel and Accessory Stores	$1,289,140	*	10%	*	10%	=	$1,546,969
4413	Automotive Parts, Accessories & Tire Stores	$1,214,471	*	10%	*	10%	=	$1,457,366
444	Building Materials/ Hardware	$2,342,803	*	10%	*	10%	=	$2,811,364
722	Eating and Drinking Establishments	$5,987,039	*	10%	*	10%	=	$7,184,447
443	Electronic and Appliance Stores	$794,553	*	10%	*	10%	=	$953,463
445	Food Stores	$15,717,382	*	10%	*	10%	=	$18,860,858
442	Home Furnishings and Furniture	$762,441	*	10%	*	10%	=	$914,929
446	Health and Personal Care Stores	$2,583,593	*	10%	*	10%	=	$3,100,311
453	Miscellaneous Retail Stores	$1,322,854	*	10%	*	10%	=	$1,587,425
451	Sporting Goods, Hobby, Book and Music Stores	$1,146,933	*	10%	*	10%	=	$1,376,320
452	Variety/General Stores	$9,636,203	*	10%	*	10%	=	$11,563,444
	Total	**$42,797,413**						**$51,356,895**

2021

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Pass-through Traffic[2/]		Increases Capture Rate With Improvements[3/]		Total Expenditures
448	Apparel and Accessory Stores	$1,434,514	*	10%	*	10%	=	$1,721,416
4413	Automotive Parts, Accessories & Tire Stores	$1,351,424	*	10%	*	10%	=	$1,621,709
444	Building Materials/ Hardware	$2,606,995	*	10%	*	10%	=	$3,128,394
722	Eating and Drinking Establishments	$6,662,183	*	10%	*	10%	=	$7,994,619
443	Electronic and Appliance Stores	$884,153	*	10%	*	10%	=	$1,060,983
445	Food Stores	$17,489,791	*	10%	*	10%	=	$20,987,749
442	Home Furnishings and Furniture	$848,419	*	10%	*	10%	=	$1,018,103
446	Health and Personal Care Stores	$2,874,938	*	10%	*	10%	=	$3,449,925
453	Miscellaneous Retail Stores	$1,472,029	*	10%	*	10%	=	$1,766,435
451	Sporting Goods, Hobby, Book and Music Stores	$1,276,270	*	10%	*	10%	=	$1,531,524
452	Variety/General Stores	$10,722,853	*	10%	*	10%	=	$12,867,424
	Total	**$47,623,569**						**$57,148,282**

APPENDIX 2.10
EXPECTED LEAKAGE IN
PRIMARY TRADE AREA
2006, 2011, 2016, 2021, 2026
(In Constant Dollars)

2026

NAICS	Category	Gross Local Expenditures[1/]		Leakage in From Pass-through Traffic[2/]		Increases Capture Rate With Improvements[3/]		Total Expenditures
448	Apparel and Accessory Stores	$1,596,280	*	10%	*	10%	=	$1,915,536
4413	Automotive Parts, Accessories & Tire Stores	$1,503,821	*	10%	*	10%	=	$1,804,585
444	Building Materials/ Hardware	$2,900,979	*	10%	*	10%	=	$3,481,175
722	Eating and Drinking Establishments	$7,413,460	*	10%	*	10%	=	$8,896,152
443	Electronic and Appliance Stores	$983,856	*	10%	*	10%	=	$1,180,627
445	Food Stores	$19,462,070	*	10%	*	10%	=	$23,354,485
442	Home Furnishings and Furniture	$944,094	*	10%	*	10%	=	$1,132,912
446	Health and Personal Care Stores	$3,199,137	*	10%	*	10%	=	$3,838,965
453	Miscellaneous Retail Stores	$1,638,026	*	10%	*	10%	=	$1,965,632
451	Sporting Goods, Hobby, Book and Music Stores	$1,420,192	*	10%	*	10%	=	$1,704,230
452	Variety/General Stores	$11,932,042	*	10%	*	10%	=	$14,318,451
	Total	**$52,993,958**						**$63,592,750**

1/ See Appendix 1.07

2/ Based on interviews with various retail experts and the professional experience of Ferrarini & Associates

3/ It is assumed that improvements made to the area will result in a more attractive retail environment that will attract higher quality businesses and improve convenience for buyers. The improved convenience and attractiveness will result in a higher percentage of purchases occurring in the Market Area.

SOURCE: US Economic Census and Ferrarini & Associates

APPENDIX 2.11
POTENTIAL SUPPORTABLE SQUARE FOOTAGE: FUTURE FORECAST
PRIMARY TRADE AREA
2011, 2016, 2021,2026
(In Constant Dollars)

2011

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$277,434	$168	1,651	3,600	**0**
4413	Automotive Parts, Accessories & Tire Stores	$196,912	$531	371	6,060	**0**
444	Building Materials/ Hardware	$379,857	$315	1,206	5,000	**0**
722	Eating and Drinking Establishments	$970,725	$233	4,166	1,820	**2**
443	Electronic and Appliance Stores	$128,827	$153	842	2,500	**0**
445	Food Stores	$2,548,380	$343	7,430	31,000	**0**
442	Home Furnishings and Furniture	$123,620	$163	758	4,500	**0**
446	Health and Personal Care Stores	$418,898	$513	817	10,000	**0**
453	Miscellaneous Retail Stores	$214,485	$166	1,292	1,764	**0**
451	Sporting Goods, Hobby, Book and Music Stores	$185,961	$147	1,265	2,288	**0**
452	Variety/General Stores	$1,562,392	$128	12,206	8,000	**1**
	Total	**$7,007,490**		**32,004**		**3**

2016

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$365,788	$168	2,177	3,600	**0**
4413	Automotive Parts, Accessories & Tire Stores	$344,601	$531	649	6,060	**0**
444	Building Materials/ Hardware	$664,759	$315	2,110	5,000	**0**
722	Eating and Drinking Establishments	$1,698,794	$233	7,291	1,820	**4**
443	Electronic and Appliance Stores	$225,451	$153	1,474	2,500	**0**
445	Food Stores	$4,459,733	$343	13,002	31,000	**0**
442	Home Furnishings and Furniture	$216,339	$163	1,327	4,500	**0**
446	Health and Personal Care Stores	$733,082	$513	1,429	10,000	**0**
453	Miscellaneous Retail Stores	$375,354	$166	2,261	1,764	**1**
451	Sporting Goods, Hobby, Book and Music Stores	$325,437	$147	2,214	2,288	**0**
452	Variety/General Stores	$2,734,227	$128	21,361	8,000	**2**
	Total	**$12,143,564**		**55,296**		**7**

APPENDIX 2.11
POTENTIAL SUPPORTABLE SQUARE FOOTAGE: FUTURE FORECAST
PRIMARY TRADE AREA
2011, 2016, 2021,2026
(In Constant Dollars)

2021

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$540,235	$168	3,216	3,600	**0**
4413	Automotive Parts, Accessories & Tire Stores	$508,944	$531	958	6,060	**0**
444	Building Materials/ Hardware	$981,790	$315	3,117	5,000	**0**
722	Eating and Drinking Establishments	$2,508,966	$233	10,768	1,820	**5**
443	Electronic and Appliance Stores	$332,970	$153	2,176	2,500	**0**
445	Food Stores	$6,586,624	$343	19,203	31,000	**0**
442	Home Furnishings and Furniture	$319,513	$163	1,960	4,500	**0**
446	Health and Personal Care Stores	$1,082,696	$513	2,111	10,000	**0**
453	Miscellaneous Retail Stores	$554,364	$166	3,340	1,764	**1**
451	Sporting Goods, Hobby, Book and Music Stores	$480,641	$147	3,270	2,288	**1**
452	Variety/General Stores	$4,038,207	$128	31,548	8,000	**3**
	Total	**$17,934,951**		**81,667**		**10**

2026

NAICS	Category	Net New Retail Expenditures[1/]	National Sales Support Factor [2/]	Supportable Square Feet	Average Store size[2/]	Estimated Number of Stores[3/]
448	Apparel and Accessory Stores	$734,355	$168	4,371	3,600	**1**
4413	Automotive Parts, Accessories & Tire Stores	$691,820	$531	1,303	6,060	**0**
444	Building Materials/ Hardware	$1,334,571	$315	4,237	5,000	**0**
722	Eating and Drinking Establishments	$3,410,499	$233	14,637	1,820	**8**
443	Electronic and Appliance Stores	$452,615	$153	2,958	2,500	**1**
445	Food Stores	$8,953,360	$343	26,103	31,000	**0**
442	Home Furnishings and Furniture	$434,322	$163	2,665	4,500	**0**
446	Health and Personal Care Stores	$1,471,736	$513	2,869	10,000	**0**
453	Miscellaneous Retail Stores	$753,560	$166	4,540	1,764	**2**
451	Sporting Goods, Hobby, Book and Music Stores	$653,347	$147	4,445	2,288	**1**
452	Variety/General Stores	$5,489,234	$128	42,885	8,000	**5**
	Total	**$24,379,418**		**111,012**		**18**

[1/] This number represents the increased amount of retail expenditures above what the area is expected to currently support.

[2/] Per ULI's 2006 Dollars and Cents of Shopping Centers

[3/] This number is represents cummulative demand. It is also important to note that one large store, such as a Walmart or Target may fill the demand of several smaller stores.

Appendix T – Tech Memo 3

West Main Street Transit-Oriented Development

Technical Memorandum #4 – Transportation Analysis

Prepared for

City of Medford and Otak

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CITATION

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The contents of this document do not necessarily reflect views or policies of the State of Oregon.

West Main Transit-Oriented Development, Technical Memorandum #4 – Transportation Analysis. Prepared by Parametrix. June 2007.

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.

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Prepared by Shelley Oylear

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Checked by Anne Sylvester, PTE

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Approved by Anne Sylvester, PTE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS (CONTINUED)

APPENDICES

ACRONYMS

HDM	Highway Design Manual
LOS	Level of Service
MPO	Metropolitan Planning Organization
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
RVCOG	Rogue Valley Council of Governments
RVMPO	Rogue Valley Metropolitan Planning Organization
STIP	State Transportation Improvement Program
TOD	Transit-Oriented Development
TPAU	Transportation Planning and Analysis Unit (of ODOT)
TSP	Transportation System Plan
V/C	Volume-to-capacity (ratio)

1. INTRODUCTION

The purpose of this report is to document the analysis of transportation conditions in the vicinity of the proposed West Main Street Transit-Oriented Development project in Medford, Oregon. The information contained in this report is intended to be used to support the evaluation of various land development alternatives in the study area by identifying the expected traffic operational conditions that could be associated with each.

The report is divided into three chapters, including this introduction. Chapter 2 presents a discussion of the project study area including a summary of intersections to be analyzed, and the identification of existing traffic data and operations analysis results.

Chapter 3 provides a summary of the land use and street network assumptions associated with each alternative, discusses the methodology used to estimate future 2023 and 2030 traffic volumes for each alternative at the intersections evaluated in the Existing Conditions chapter, and presents the results of intersection operations analysis. Chapter 3 also presents a variety of intersection improvement options to address the existing and/or expected future traffic congestion problems.

2. EXISTING CONDITIONS

The purpose of this Chapter is to establish the Existing Conditions (2007) of the study area roadways and intersections. This includes an examination of traffic control and geometrics, traffic volumes, and intersection volume-to-capacity (V/C) analysis and levels of service. The Chapter does not include a comprehensive assessment of all existing conditions, but focuses solely on traffic analysis.

2.1 STUDY AREA

The analysis of existing traffic conditions within the West Main Street study area focuses on nineteen key intersections located at various locations throughout the western portion of the City. XX study area intersection are currently signalized, while xx unsignalized, The list of study area intersections includes the following:

- Highway 62 (Crater Lake Highway) at Southbound Ramps
- Highway 62 (Crater Lake Highway) at Rogue Valley Mall Access Road
- Highway 62 (Crater Lake Highway) at Highway 99/Ore 238
- Highway 99 at West Table Rock Road
- Ore 238 at Central Avenue
- Ore 238 at Sage Road
- Ore 238 at Ross Lane
- Ore 238 at Old Ore 238 (West Main Street)
- McAndrews Road at Sage Road
- McAndrews Road at Jackson Street
- McAndrews Road at Columbus Avenue
- McAndrews Road at Ross Lane
- Jackson Street at Columbus Avenue
- 8th Street at Oakdale Avenue
- Main Street at Oakdale Avenue
- Main Street at Columbus Avenue
- Main Street at Ross/Lozier Lane
- Stewart Avenue at Columbus Avenue
- Stewart Avenue at Lozier Lane

2.2 EXISTING TRAFFIC COUNTS

ODOT and the City of Medford provided turning movement counts for the West Main Street study area intersections. For most intersections, the counts were conducted for 13 hours between 6:00 am and 7:00 pm. At the intersection of Ore 238 with Old Ore 238 (West Main Street), data was collected for 16 hours between 6:00 am and 10:00 pm. Data for each intersection was disaggregated into 15-minute time increments during the peak periods to facilitate analysis.

The study area turning movement traffic counts were taken over several years ranging from 2004 through 2007. For purposes of the analysis in this report, these counts were adjusted to represent 2007 conditions by applying an annual growth rate. This growth rate was based on data obtained from ODOT in its published 2025 future volume tables for locations along OR 238, OR 62, and OR 99 in Medford. The growth rates for the various locations were averaged to yield an average annualized growth rate of 6.1 percent. 4:00 to 5:00 pm was identified as the peak travel period based on an assessment of the commonality of traffic data from 2005.

In addition to adjustments to bring all count data into a common year, adjustments were also made to account for the seasonality of the traffic data so that all turning movement counts ultimately reflected 30th highest hourly volumes consistent with the ODOT Transportation Planning and Analysis Unit's (TPAU) guidelines. The existing traffic volume adjustment calculations are presented in Appendix A.

The adjusted turning movement counts were then rounded to the nearest 5 trips and balanced between each of the study intersections, where appropriate. Adjustments were limited to a maximum of 10 percent of the link volume.

2.3 EXISTING TRAFFIC OPERATIONS

Operational Standards

Within the state of Oregon traffic operations are evaluated based on two sets of criteria or standards. For state highways, the operative standard is expressed in terms of a ratio between traffic volumes and the roadway or intersection's capacity. For local street intersection within the City of Medford, the quality of traffic performance is assessed in terms of intersection or roadway levels of service (LOS). These two operational standards are described below.

Volume to Capacity Ratios

As adopted in the 1999 Oregon Highway Plan (OHP), ODOT uses volume-to-capacity (V/C) ratios to measure state highway performance rather than intersection or roadway levels of service. Various V/C thresholds are applied to all state highways based on functional classification of these facilities. Highway 62 (Crater Lake Highway) is classified by the OHP as Statewide Highway located within the boundaries of a Metropolitan Planning Organization (MPO). The adopted V/C standard for this highway of 0.85. Both Highway 99 and Ore 238 have been designated as District Highways (also within an MPO) with an adopted V/C standard of 0.90. A summary of this information is presented in Table 2-1.

Table 2-1. Maximum Volume to Capacity for Peak Hour Operating Conditions

Highway	Designation	Maximum V/C Ratio
Highway 62 (Crater Lake Hwy) west of I-5	Urban (MPO) Statewide Highway	0.85
Highway 99 at Highway 62	Urban (MPO) District Highway	0.90
Oregon 238 west of Highway 99	Urban (MPO) District Highway	0.90

Source: Oregon Highway Plan, Policy 1F Mobility Standards, Table 6.

Highway Design Manual

The Highway Design Manual (HDM) prescribes v/c ratio standards for all major highway improvements. It is different from the OHP standards in that the OHP standards are for planning purposes, and the HDM standards are used when considering any design alternatives. If the acceptable v/c ratio cannot be met, it is necessary to seek a design exception. Table 2-2 lists the acceptable v/c ratios for future design options for state highways in the study area.

Table 2-2. 20 Year Design-Mobility Standards (Volume/Capacity [V/C]) Ratios

Location	Designation	Maximum V/C Ratio
Highway 62 (Crater Lake Hwy) west of I-5	Urban (MPO) Statewide Highway	0.80
Highway 99 at Highway 62	Urban (MPO) District Highway	0.85
Oregon 238 west of Highway 99	Urban (MPO) District Highway	0.85

Source: Highway Design Manual, Transportation Analysis, Table 10-1.

Intersection Levels of Service

Another measure of intersection operating performance during peak travel periods is based on average control delay per vehicle entering the intersection. This delay is calculated using equations that take into account turning movement volumes, intersection lane geometry and traffic signal features, as well as characteristics of the traffic stream passing through the intersection, including time required to slow, stop, wait, and accelerate to move through the intersection. Various levels of delay are then expressed in terms of levels of service (LOS) for either signalized or unsignalized intersections. The various levels of service range from LOS A (which reflects free-flow conditions) through LOS F (which reflects operational breakdown). Between LOS A and LOS F progressively higher LOS grades reflect increasingly worse intersection performance, with higher levels of control delay and increased congestion and queues. Characteristics of each LOS are briefly described below in Table 2-3. The City of Medford has adopted LOS D as its operative standard for signalized intersection traffic performance and LOS E for side streets at unsignalized intersections.

Table 2-3. Level of Service Definitions

	Average Delay/Vehicle (sec.)		
Level of Service	Signalized	Unsignalized	Description
A (Desirable)	<10 seconds	<10 seconds	Very low delay; most vehicles do not stop.
B (Desirable)	>10 and <20 seconds	>10 and <15 seconds	Low delay resulting from good progression, short cycle lengths, or both.
C (Desirable)	>20 and <35 seconds	>15 and <25 seconds	Higher delays with fair progression, longer cycle lengths, or both.
D (Acceptable)	>35 and <55 seconds	>25 and <35 seconds	Noticeable congestion with many vehicles stopping. Individual cycle failures occur.
E (Unsatisfactory)	>55 and <80 seconds	>35 and <50 seconds	High delay with poor progression, long cycle lengths, high V/C ratios, and frequent cycle failures.
F (Unsatisfactory)	>80 seconds	>50 seconds	Very long delays, considered unacceptable by most drivers. Often results from over-saturated conditions or poor signal timing.

Source: 2000 Highway Capacity Manual, Transportation Research Board.

Summary of Existing Traffic Operations

The analysis of existing pm traffic operations was conducted using a Synchro traffic simulation model which was developed for study area intersections based on information received from the City of Medford. This model includes geometrics, other relevant physical data, and existing traffic control for each intersection. Traffic volumes in the City's model were updated using the count data provided for the West Main TOD study and adjusted as described above. Existing signal timing for study area intersections were obtained from the

Synchro model and updated where appropriate using the most current signal timing. Each of the unsignalized intersections is stop-controlled on the minor street approach. Additionally, for this analysis a saturation flow rate of 1800 pcphgl has been assumed. Analysis procedures follow TPAU guidelines.

Table 2-4 summarizes existing (2007) traffic operations for the pm peak hour at the 19 study area intersections. Data in these tables includes the overall intersection volume-to-capacity (V/C) ratios, average intersection delay, and intersection levels of service. The V/C ratio relates the magnitude of traffic traveling through an intersection with its theoretical capacity. Ratios above 1.0 often accompany LOS E and LOS F conditions indicating inadequate capacity for one or more major movements. At intersections operating at LOS D or better, V/C ratios above 1.0 are useful indicators of potential concerns such as sub-optimal signal timing or inadequate turn lane storage. Existing lane configurations and traffic control are shown in Appendix B along with intersection capacity analysis results for 2007.

Table 2-4. Existing(2007) PM Peak Hour Traffic Operations

Signalized Intersections		V/C Ratio	Control Delay (sec/veh)	LOS	Applicable Standard
Highway 62 at I-5 SB Ramps		0.71	14.9	B	0.85
Highway 62 at RV Mall Access Road		0.52	18.7	B	0.85
Highway 62 at Highway 99/ OR 238		0.68	31.9	C	0.85
Highway 99 at West Table Rock Road		0.71	26.5	C	0.90
OR 238 at Central Avenue		0.56	28.4	C	0.90
OR 238 at Sage Road		0.83	67.9	E	0.90
McAndrews Road at Sage Road		**0.98**	**55.7**	**E**	**D**
McAndrews Road at Columbus Avenue		0.58	29.3	C	D
8th Street at Oakdale Avenue		0.30	12.1	B	D
Main Street at Oakdale Avenue		0.33	8.9	A	D
Main Street at Columbus Avenue		0.81	39.4	D	D
Main Street at Ross/Lozier Lane		0.86	34.7	C	D
Stewart Avenue at Columbus Avenue		0.86	20.8	C	D
Stewart Avenue at Lozier Lane		1.04	42.1	D	D
Unsignalized Intersections	**Critical Movement**	**V/C Ratio**	**Control Delay (sec/veh)**	**LOS**	**Applicable Standard**
OR 238 at Ross Lane	NB Left	**>1.00**	**>80**	**F**	**0.90**
OR 238 at Old 238 (West Main Street)	NB Left	0.47	17.9	C	0.90
	WB Left	0.04	7.6	A	0.90
McAndrews Road at Ross Lane	WB Left	**>1.00**	**>80**	**F**	**E**
Jackson Street at McAndrews Road	WB All	0.55	27.1	D	E
Jackson Street at Columbus Avenue	All-Way Stop	0.70	23.5	C	E

Note 1: LOS means intersection level of service.
Note 2: "Critical Delay" and "Critical LOS" refers to the delay or LOS experienced for the specific intersection traffic movement listed.
Note 3: NB means northbound, WB means westbound.

Currently, all signalized study area intersections are operating within the applicable ODOT V/C or City LOS standards with one exception. The intersection of McAndrews Road at

Sage Road currently operates at Level of Service (LOS) E with an average delay of 55.7 seconds per vehicle entering the intersection.

Two unsignalized intersections exceed applicable City of Medford standards. These include the intersection of Ore 238 with Ross Lane which has a V/C ratio of greater than 1.0 for northbound left-turning traffic, and McAndrews Road and Ross Lane which currently operates at LOS F for the westbound stop-controlled movement.

3. FUTURE (2030) TRAFFIC CONDITIONS

The purpose of this chapter is to document future traffic volume growth at key intersections in the West Main Street TOD study area and to identify transportation system impacts and infrastructure requirements associated with future growth. This Chapter includes a discussion of the methodology and assumptions used in developing future traffic forecasts, and presents a summary of traffic operations analysis and mitigation needs associated with 2023 and 2030 No-Build and TOD-related alternatives.

3.1 DEVELOPMENT ASSUMPTIONS FOR ALTERNATIVE SCENARIOS

In order to determine in the study area and the implications of various TOD alternatives, 2023 and 2030 peak period traffic forecasts were developed for each of the study area intersections identified and discussed in Chapter 2. Five scenarios were developed and assessed as follows

- Scenario 1–2002 Baseline
- Scenario 2–No Build Alternative
- Scenario 3–Market Alternative
- Scenario 4–TOD Alternative
- Scenario 5–Enhanced TOD Alternative

Scenarios 1 and 2 were based on the 2002 and 2030 population, households and employment assumptions inherent in the existing RVMPO travel demand model developed by TPAU for the Rogue Valley Council of Governments. Analysis of 2030 travel forecasts was based on the traffic volume growth expectations over 2002 as identified in the output of the RVMPO model. Analysis of 2023 travel forecasts was based on an interpolation of traffic volume growth between 2002 and 2030 and not directly on 2023 land use and development expectations. The travel forecasting process is further discussed in Section 3.2.

Scenario 3 assumes market-driven development that is expected to occur with existing zoning and takes into account the findings derived from the Market Study (please refer to Technical Memorandum #3). Scenario 4 also takes into account Market Study findings, but assume development at higher densities with new zoning and design standards, as well as an improved local street network with new block grid spacing of 300 to 500 feet.

Scenario 5 is intended to be similar in development density as Scenario 4, but with a new transit route along Ross Lane and McAndrews Road. The land use and development assumptions would be the same as with Scenarios 4, but Scenario 5 would have slightly more favorable assumptions regarding percentage of trips made by transit, biking, or walking. Due to limitations in ability of the RVMPO travel demand model to estimate changes in transit, biking and walking trips, future traffic volume forecasts were not developed for Scenario 5. A qualitative assessment of this alternative was prepared.

Development assumptions associated with the various alternative scenarios are presented and described below. Parks, open spaces, and school facilities are assumed to be the same in all development alternatives.

2030 No-Build Alternative

Table 3-1 provides a summary of the buildable lands assumptions which form the basis of analysis for each land development alternative. The buildable lands analysis represents future development potential within the Medford urban growth area consistent with both Comprehensive Plan land use designations and the availability of property that could reasonably be expected to develop or redevelop over the planning horizon.

Table 3-1. Medford UGB and West Main TOD Area Buildable Lands

	Residential	Commercial	Industrial	Parks	Total
Medford UGB					
Land Use Status (acres)					
Developed	6,192	1,452	2,042	261	9,947
Unbuildable	300	124	109	239	772
Vacant	1,838	271	896	22	3,027
Partially Vacant	943				943
Redevelopable	259	151	371		781
Subtotal	9,532	1,998	3,418	522	15,470
Land not in tax lots (i.e. r-o-w)					2,607
Total Medford UGB					18,077
Buildable Land in UGB	3,040	422	1,267	22	4,751
West Main TOD					
Approx. % of UGB Land Area	2.7%	7.2%	0.0%	1.9%	2.6%
Land Use Status (acres)					
Developed	**122**	**70**	0	10	**202**
Unbuildable	11	0	0	0	11
Vacant	**21**	**22**	0	0	**43**
Partially Vacant	**44**	**23**	0	0	**67**
Redevelopable	55	28	0	0	83
Total in TOD **	**253**	**143**	**0**	**10**	**406**
Buildable Land in TOD	**120**	**73**	0	0	**193**
% of UGB Buildable Land	**4%**	**17%**	0%	0%	**4%**

Notes: Data derived by Otak from City of Medford Buildable Lands Analysis GIS data, 2006.
* Vacant, Partially Vacant, and Redevelopable, Preliminary Estimate.
** Does not include land in tax lots such as public right-of-way.
*** Preliminary estimates are shown, actual commercial estimates are thought to range from 11% to 17%.

2030 Market Alternative

Table 3-2 summarizes the resulting assumptions for the future buildout with the Market Alternative (Scenario 3).

Table 3-2. Analysis of TOD Net New Development Potential, Market Alternative

Traffic Analysis Zone (TAZ)	Vacant & Buildable Residential Zoned Land	Vacant & Buildable Commercial Zoned Land	New Households	Net New Pop.	Net New HHs	Net New SFD Units	Net New SFA Units	Net New MFL Units	Net New Jobs
TAZ 296	38.3	0.0	234	556	222	112	43	79	2
TAZ 297	4.8	19.7	321	764	306	11	36	275	151
TAZ 298	3.4	11.2	197	469	188	5	25	168	86
TAZ 299	11.3	0.8	97	232	93	33	32	33	7
TAZ 300	41.0	3.6	363	865	346	120	116	128	30

Table 3-2. Analysis of TOD Net New Development Potential, Market Alternative Cont.

Traffic Analysis Zone (TAZ)	Vacant & Buildable Residential Zoned Land	Vacant & Buildable Commercial Zoned Land	New Households	Net New Pop.	Net New HHs	Net New SFD Units	Net New SFA Units	Net New MFL Units	Net New Jobs
TAZ 543	11.5	9.8	292	695	278	16	40	237	76
TAZ 547	5.0	1.8	64	152	61	14	19	31	14
TAZ 548	0.7	26.8	369	879	352	2	43	326	204
TAZ 549	0.3	0.0	2	4	1	2	0	0	0
Total	**116.4**	**73.5**	1,938	4,615	1,846	313	353	1,277	570
Avg. Density	**11.8**	Dwellings/acre							

Source: Otak, Inc. based on City buildable lands and development density assumptions.

2030 TOD Alternatives

Table 3-3 summarizes the resulting development assumptions for the future buildout with the TOD Alternatives (Scenarios 4 and 5). As noted above, 2030 traffic volume forecasts and operations analysis were prepared only for Scenario 4 as reasonable forecasts could not be developed for Scenario 5 (the Enhanced TOD Alternative).

Table 3-3. Analysis of TOD Net New Development Potential, TOD Model Alternative

Traffic Analysis Zone (TAZ)	Vacant & Buildable Residential Zoned Land	Vacant & Buildable Commercial Zoned Land	New Households	Net New Pop.	Net New HHs	New SFD Units	New SFA Units	New MFL Units	Net New Jobs
TAZ 296	38.3	0.0	388	924	370	60	52	277	4
TAZ 297	4.8	19.7	340	808	323	4	41	295	226
TAZ 298	3.4	11.2	203	482	193	3	25	175	128
TAZ 299	11.3	0.8	156	371	148	15	38	103	10
TAZ 300	41.0	3.6	509	1,211	484	74	138	298	46
TAZ 543	11.5	9.8	310	739	296	10	40	261	114
TAZ 547	5.0	1.8	88	209	84	7	19	62	21
TAZ 548	0.7	26.8	372	885	354	1	43	329	306
TAZ 549	0.3	0.0	2	4	1	2	0	0	0
Total	**116.4**	**73.5**	2,366	5,634	2,254	176	396	1,800	854
Avg. Density	**14.4**	Dwellings/acre							

Source: Otak, Inc. based on City buildable lands and development density assumptions.

Table 3-4 presents a synposis of the population and employment estimates for 2030 for each of the development alternatives evaluated in this chapter. As indicated in the table,

Table 3-4. West Main TOD 2030 Development Assumptions

	2030 No-Build (1)		2030 Market		2030 TOD	
TAZ	Households	Employees	Households	Employees	Households	Employees
296	338	77	359	36	506	37
297	86	289	349	392	367	467
298	109	381	232	352	237	395
299	290	300	325	193	380	196
300	359	72	548	58	687	73
543	340	281	462	232	480	270
547	113	207	132	201	155	208
548	46	271	389	389	391	490
549	38	10	39	10	39	10
Total	**1,719**	**1,888**	**2,835**	**1,863**	**3,242**	**2,146**

(1) From RVMPO travel demand model.

3.2 DEVELOPMENT OF 2030 AND 2023 TRAFFIC FORECASTS

As noted at the outset of this Chapter, traffic forecasts for the West Main Street study area were developed to compare and assess the anticipated roadway system improvement needs associated with each of the future year 2023 and 2030 land use and transportation system alternatives. A multi-step process was undertaken to prepare these forecasts which relied on the RVMPO travel demand model developed and maintained for the Medford urbanized area by the ODOT Transportation Planning Analysis Unit (TPAU). For purposes of this study the future planning horizon year was assumed to be 2030, consistent with other transportation planning activities currently underway within the region.

The travel demand model uses current and projected land use to estimate travel demand. Estimates were prepared for four land use/transportation system alternative scenarios including:

- Scenario 1–2002
- Scenario 2–2030 No Build
- Scenario 3–2030 Market
- Scenario 4–2030 TOD

The travel demand forecasting process used to obtain future intersection level traffic volumes included the following steps for each of the 2030 future alternatives:

1. Using the regional travel demand model maintained by ODOT's TPAU group, 2002 and 2030 daily traffic volume estimates were prepared for the street system network throughout the Medford urbanized area. These estimates are based on land development consistent with the local City and County Comprehensive Plans and on the transportation system improvements anticipated to be place by 2030. The 2002 and 2030 daily volume estimates were assigned to the study area street system and peak factors were applied by TPAU to derive link volumes for the peak analysis period.
2. 2030 forecasts compared with 2000 peak hour model trip assignments to determine the extent of traffic growth anticipated on each roadway link in the study area. The roadway segment volumes for 2002 were subtracted from each 2030 scenario for the net difference in trips. The trips were then divided by 28 years to yield an annual increase in trips. The annual trip increase was multiplied by 23 year to yield the increase in trips from 2007 to each 2030 scenario.
3. Future traffic growth was added to existing turning movement traffic counts using the methods specified in NCHRP 255 to produce smoothed 2030 PM peak hour turning

movement projections. This involved proportioning the additional link volume entering each intersection to each turning movement according to the 2007 turning movement data. The turning movement estimates for each of the scenarios were rounded to the nearest 5 trips and balanced between each of the study intersections to be less than 10 percent of the link volume.

4. 2023 PM peak hour turning movement projections were derived from those prepared for 2030 by straight line interpolation of assigned link volumes between the 2002 and 2030 forecasts. The resulting 2023 link volumes were then adjusted using the same method discussed above to create peak hour turning movement projections at the study area intersections.

The 2023 and 2030 PM peak hour turning movement traffic volume projections that resulted from these calculations are presented in Appendix C by time period, alternative, intersection and specific movement.

3.3 2030 TRAFFIC OPERATIONS

The 2030 PM peak hour traffic volume projections were subsequently analyzed to address anticipated capacity and operational deficiencies at each study area intersection for each alternative. The PM peak travel hour during a typical weekday generally occurs between 4:00 PM and 6:00 PM. Analysis reflects the unique lane channelization and traffic control features of study area intersection. At most intersections, the existing lane configuration and traffic control is assumed as the basis for the 2030 traffic operations analysis. However, it should be noted that several roadway and/or intersection improvements are anticipated to be in place by 2030 under each of the alternatives, as these are either currently funded improvements or result in such a significant change in traffic circulation that they should be assumed for purposes of this analysis.

Improvements in the analysis of alternatives include:

- Installation of a traffic signal and added lane channelization at the intersection or McAndrews Road with Ross Lane. Jackson County is currently designing improvements to both of these intersections including added turn lane capacity and signalization at McAndrews Road and improvements to westbound right-turn channelization at Ross Lane.
- Installation of a traffic signal without additional lane channelization improvements at the intersection of OR 238 with Ross Lane (in STIP for 2009).
- Realignment and extension of Columbus Avenue north of McAndrews Road to provide direct connection with Sage Road serving industrial area. Sage Road would be reduced to local street status, but existing intersection channelization and traffic signal would remain.

As noted above, three 2030 future year scenarios were developed and evaluated. The first alternative represents likely conditions assuming that community growth is consistent with the existing adopted City Comprehensive Plan. The second alternative is based on market driven future travel projections assuming new development and/or redevelopment opportunities. The third alternative represents future travel projections based on transit oriented development within the study area.

The analysis of projected 2030 pm traffic operations was conducted using the Synchro traffic simulation model which had originally been updated for the existing conditions analysis described in Chapter 2. As indicated in the discussion of existing traffic operations analysis,

this model includes geometrics, other relevant physical data, and existing traffic control for each intersection. For signalized intersections, an optimal system cycle length was determined with a 60 second minimum and 120 second maximum set, with 5 second increments.

2030 No Build Alternative

Table 3-5 summarizes future 2030 traffic operations for the PM peak hour at the study intersections for each alternative, and compares these results to existing (2007) conditions. Data in this table includes the overall intersection volume-to-capacity (V/C) ratios, average intersection delay, and intersection levels of service. The V/C ratio relates the magnitude of traffic traveling through an intersection with its theoretical capacity. Ratios above 1.0 often accompany LOS E and LOS F conditions indicating inadequate capacity for one or more major movements. At intersections operating at LOS D or better, V/C ratios above 1.0 are useful indicators of potential concerns such as sub-optimal signal timing or inadequate turn lane storage. 2030 intersection analysis worksheets for the No-Build Alternative are included in Appendix D.

By 2030, several intersections are expected to experience significant delays for stop-controlled side street traffic and at signalized intersections with the No Build Alternative. The data in Table 3-5 indicates that seven intersections are expected to exceed either the State V/C standard or the City's operational standard for intersection level of service. The failing intersections include:

- Ore 238 (Rossanley Drive) and Sage Road
- OR 238 (Rossanley Drive) and Ross Lane
- Main Street and Columbus Avenue
- Main Street and Ross/Lozier Lane
- Stewart Avenue and Lozier Lane
- Jackson Street and McAndrews Road (unsignalized)
- Jackson Street and Columbus Avenue (unsignalized)

Two of these intersections are on state facilities and five are city intersections. With the exception of the intersection of Ore 238 with Ross Lane all of these intersections currently operate within applicable standards today. The future failing unsignalized intersections will require revision of the existing traffic control with either a signal or a roundabout to achieve operation standards. For most of the poorly performing signalized intersections, signal retiming or additional lanes would be required to bring the intersections into compliance with operational standards.

2030 Market Alternative

Table 3-5 presents the results of the intersection level traffic operations analysis for the study intersections that were evaluated with the Market Demand Alternative. The relative trip differences used in the Market Alternative results in both slight increases and decreases in trips at the subject intersections in comparison to the No Build Alternative. Detailed traffic operations calculations for 2030 conditions are included in Appendix E.

The data in Table 3-5 indicates that at five intersections, average delay actually decreased slightly from the No Build Alternative, including OR 238 at Ross Lane, McAndrews Road at Columbus Avenue, 8th Street at Oakdale Avenue, Main Street at Columbus Avenue, and

Table 3-5. 2007 and 2030 Peak Hour Intersection Traffic Operations

	2007 Existing Conditions			2030 No Build (1)			2030 Market (1)			2030 TOD (1)			
Signalized Intersections	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**Applicable Standards**
Highway 62 at I-5 SB Ramps	0.71	14.9	B	0.77	18.1	B	0.77	18.2	B	0.77	18.1	B	0.85
Highway 62 at RV Mall Access	0.52	18.7	B	0.59	16.8	B	0.60	16.9	B	0.59	16.8	B	0.85
Highway 62 at Hwy 99/ OR 238	0.68	31.9	C	0.85	41.2	D	0.85	41.6	D	0.85	40.6	D	0.85
Highway 99 at W Table Rock Rd	0.71	26.5	C	0.79	33.4	D	0.79	33.4	C	0.79	33.4	C	0.90
OR 238 at Central Avenue	0.56	28.4	C	0.65	28.0	C	0.66	28.0	C	0.66	28.3	C	0.90
OR 238 at Sage Road	0.83	67.9	E	**1.07**	**>80**	**F**	**1.08**	**>80**	**F**	**1.03**	**>80**	**F**	**0.90**
OR 238 at Ross Lane		Unsignalized		**1.08**	**47.7**	**D**	**1.08**	**45.8**	**D**	**1.09**	**90.2**	**F**	**0.90**
McAndrews Road at Sage Road	**0.98**	**55.7**	**E**	0.72	23.2	C	0.72	23.2	C	0.72	23.2	C	D
McAndrews Road at Columbus Ave	0.58	29.3	C	0.91	54.6	D	0.90	54.0	D	0.90	53.9	D	D
McAndrews Road & Ross Lane		Unsignalized		0.89	28.4	C	0.87	34.4	C	0.87	28.1	C	D
8th Street at Oakdale Avenue	0.30	12.1	B	0.47	14.2	B	0.46	14.0	B	0.46	14.0	B	D
Main Street at Oakdale Avenue	0.33	8.9	A	0.47	10.6	B	0.45	10.6	B	0.45	10.6	B	D
Main Street & Columbus Avenue	0.81	39.4	D	**1.04**	**78.6**	**E**	**1.02**	**73.0**	**E**	**1.02**	**73.0**	**E**	**D**
Main Street & Ross/Lozier Lane	0.86	34.7	C	**>1.00**	**>80**	**F**	**1.09**	**88.8**	**F**	**>1.00**	**>80**	**F**	**D**
Stewart Avenue & Columbus Avenue	0.56	20.8	C	0.70	23.8	C	0.70	24.1	C	0.70	24.1	C	D
Stewart Avenue & Lozier Lane	1.04	42.1	D	**1.07**	**73.8**	**E**	**1.07**	**73.8**	**E**	**1.07**	**73.8**	**E**	**D**
Unsignalized Intersections													
OR 238 & Old 238 (W. Main)													
Northbound Left	0.47	17.9	C	0.75	35.1	D	0.75	35.1	D	0.75	35.1	D	0.90
Westbound Left	0.04	7.6	A	0.07	8.5	A	0.07	8.5	A	0.07	8.5	A	0.90
Jackson Street at McAndrews Road													
Westbound All	0.55	27.1	D	**>1.00**	**>80**	**F**	**>1.00**	**>80**	**F**	**>1.00**	**>80**	**F**	**E**
Jackson Street at Columbus Avenue													
All-Way Stop	0.70	23.5	C	**0.95**	**83.2**	**F**	**0.97**	**87.0**	**F**	**0.95**	**83.2**	**F**	**E**

(1) Signals Optimized with 60 sec Min and 120 sec Max Cycle length

Main Street at Ross/Lozier Lane. The decrease in delay is nominal and has little impact on overall intersection operations. Analysis results indicate that the same seven intersections in the No Build Alternative are expected to exceed either the State V/C standard or the City's operational standard for intersection level of service with the Market Alternative.

2030 TOD Alternative

Table 3-5 also presents the results of the intersection level traffic operations analysis for the TOD alternative. Detailed traffic operations calculations for 2030 conditions are included in Appendix F.

The results at five of the intersections evaluated with the TOD Alternative indicated a reduction in delay from the No Build Alternative. These intersections included OR 238 at Sage Road, McAndrews Road at Columbus Avenue, McAndrews Road at Ross Lane, 8th Street at Oakdale Avenue, and Main Street at Columbus Avenue. The trip differences between the alternatives are nominal and have little impact on the resulting overall intersection operations. The data in Table 3-5 indicates that the same seven intersections in the No Build and the Market Alternatives are expected to exceed either the State V/C standard or the City's operational standard for intersection level of service with the TOD Alternative. No additional intersections are anticipated to exceed operational standard for either V/C or average intersection delay.

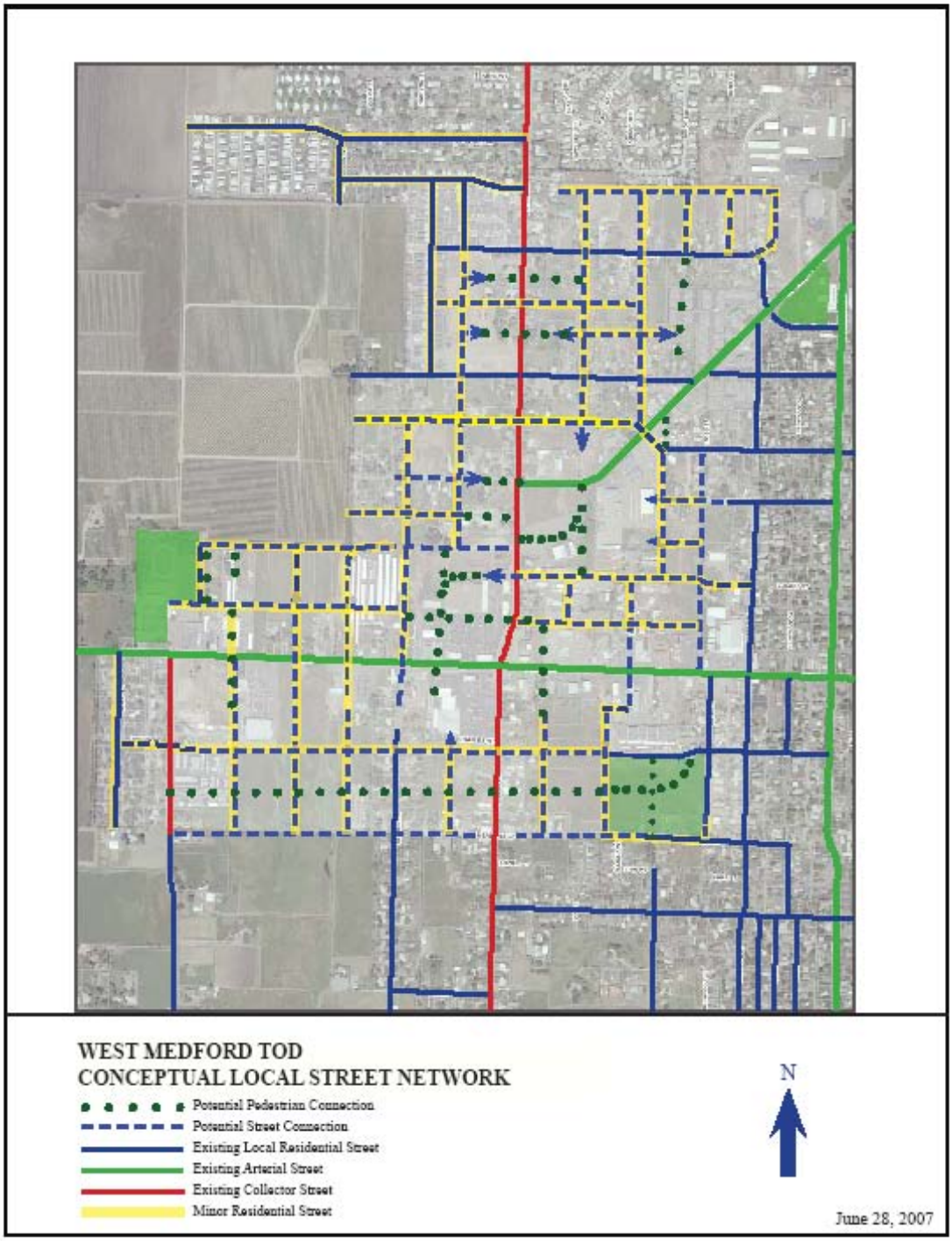
2030 Enhanced TOD Alternative

The Enhanced TOD Alternative was not analyzed using the RVMPO travel demand model as this analysis tool cannot presently estimate reductions in vehicular trips associated with increases in transit, pedestrian and bicycle facilities and services such as those proposed for this TOD. Accordingly, potential impacts on vehicular trip-making of the Enhanced TOD Alternative was assessed a qualitatively.

Figure 1 illustrates a proposed system of local street connections that has the effect of moving the existing downtown neighborhood street grid further west. As noted in the earlier discuss of street system improvement options, this grid system provides opportunities for vehicular traffic to use alternative routes for short-distance trips, thus avoiding the expected future traffic congestion problems along portions of Main Street and Ross Lane.

In addition, this street system grid also offers improved connectivity for bicycle and walking trips. Experience in Oregon and elsewhere in the United States indicates that the combination of intensified mixed used development coupled with improved multi-modal circulation and accessibility can significantly increase the bicycle and/or pedestrian share of person trips generated over the course of a typical day. Current experience in the Pearl District of Portland indicates that the walking mode share is close to 30 percent of all person trips during the peak period. While the West Main TOD would be unlikely to see a walking mode share that high, a doubling of existing usage would not be unreasonable. Along with added bicycle and transit trips, the increase in alternative mode travel could double or even triple over existing experience. This could result in some additional improvement in traffic operations in the TOD vicinity, over that which could be experienced due to increased vehicular circulation opportunities. However, it is not anticipated that the traffic operational problems identified in the earlier section of this Chapter would be substantially reduced or eliminated.

Figure 1. Local Street Plan



Source: Otak, 2007

3.4 2023 TRAFFIC OPERATIONS

Table 3-6 summarizes the results of intersection operations analysis for 2023 and compares these results to existing (2007) conditions. This time period was selected in addition to 2030 (which is the horizon year for the Rogue Valley Regional Transportation Plan) as 2023 is currently the horizon year for the adopted City of Medford Transportation System Plan (TSP). The 2023 analysis assumes the same roadway network assumptions as were made for the 2030 analysis. As with Table 3-5, data in this table includes the overall intersection volume-to-capacity (V/C) ratios, average intersection delay, and intersection levels of service.

2023 No Build Alternative

By 2023, several intersections are expected to experience significant delays for stop-controlled side street traffic and at signalized intersections. The data in Table 3-6 indicates that six intersections are expected to exceed either the State V/C standard or the City's operational standard for intersection level of service. The failing intersections include:

- Ore 238 (Rossanley Drive) and Sage Road
- OR 238 (Rossanley Drive) and Ross Lane
- Main Street and Columbus Avenue
- Main Street and Ross/Lozier Lane
- Stewart Avenue and Lozier Lane
- Jackson Street and McAndrews Road (unsignalized)

Two of these intersections are on state facilities and four are city intersections. With the exception of the intersection of Ore 238 with Ross Lane all study area intersections currently operate within applicable standards today. The future failing unsignalized intersections will require revision of the existing traffic control with either a signal or a roundabout to achieve operation standards. For most of the poorly performing signalized intersections, signal retiming or additional lanes would be required to bring the intersections into compliance with operational standards. 2023 intersection analysis worksheets for the No-Build Alternative are included in Appendix G.

2023 Market Alternative

Table 3-6 presents the results of the intersection level traffic operations analysis for the study intersections that were evaluated with the Market Demand Alternative. The relative trip differences used in the Market Alternative results in slight increases and decreases in trips at the subject intersections in comparison to the No Build Alternative. Detailed traffic operations calculations for 2030 conditions are included in Appendix H.

Traffic operations analysis results indicate that at nine of the intersections, average delay actually decreased slightly from the No Build Alternative, including Highway 99 at Table Rock Road, OR 238 at Sage Road, OR 238 at Ross Lane, McAndrews Road at Ross Lane, Main Street at Columbus Avenue, Main Street at Ross/Lozier Lane, Stewart Avenue at Lozier Lane, Jackson Street at McAndrews Road and Jackson Street at Columbus Avenue. The decrease in delay is nominal and has little impact on overall intersection operations.

Table 3-6. 2007 and 2023 Peak Hour Intersection Traffic Operations

	2007 Existing Conditions			2023 No Build (1)			2023 Market (1)			2023 TOD (1)			
Signalized Intersections	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**Applicable Standards**
Highway 62 at I-5 SB Ramps	0.71	14.9	B	0.75	15.5	B	0.75	16.7	B	0.75	16.6	B	0.85
Highway 62 at RV Mall Access	0.52	18.7	B	0.54	18.9	B	0.57	16.8	B	0.56	16.1	B	0.85
Highway 62 at Hwy 99/ OR 238	0.68	31.9	C	0.80	37.6	D	0.80	39.0	D	0.79	38.1	D	0.85
Highway 99 at W Table Rock Rd	0.71	26.5	C	0.77	30.3	C	0.76	30.0	C	0.78	28.7	C	0.90
OR 238 at Central Avenue	0.56	28.4	C	0.63	24.9	C	0.64	25.2	C	0.64	25.2	C	0.90
OR 238 at Sage Road	0.83	67.9	E	**0.96**	**68.0**	**E**	0.90	66.3	E	**0.97**	**83.0**	**F**	**0.90**
OR 238 at Ross Lane		Unsignalized		**1.04**	**33.4**	**C**	**1.00**	**29.0**	**C**	**0.97**	**32.2**	**C**	**0.90**
McAndrews Road at Sage Road	**0.98**	**55.7**	**E**	0.62	21.7	C	0.65	21.8	C	0.67	22.0	C	D
McAndrews Road at Columbus Ave	0.58	29.3	C	0.85	34.1	C	0.86	34.6	C	0.85	46.0	D	D
McAndrews Road & Ross Lane		Unsignalized		0.84	18.1	B	0.81	17.4	C	0.80	23.6	C	D
8th Street at Oakdale Avenue	0.30	12.1	B	0.42	13.5	B	0.42	13.5	B	0.41.	13.3	B	D
Main Street at Oakdale Avenue	0.33	8.9	A	0.42	10.2	B	0.42	10.2	B	0.40	9.9	A	D
Main Street & Columbus Avenue	0.81	39.4	D	**0.95**	**57.7**	**E**	**0.95**	**57.1**	**E**	0.93	54.4	D	**D**
Main Street & Ross/Lozier Lane	0.86	34.7	C	**1.03**	**74.6**	**E**	**1.03**	**61.7**	**E**	**1.05**	**68.0**	**E**	D
Stewart Avenue & Columbus Avenue	0.56	20.8	C	0.64	22.4	C	0.65	22.6	C	0.65	22.6	C	D
Stewart Avenue & Lozier Lane	1.04	42.1	D	**1.01**	**60.3**	**E**	**1.00**	**59.6**	**E**	**1.01**	**60.8**	**E**	D
Unsignalized Intersections													
OR 238 & Old 238 (W. Main)													
Northbound Left	0.47	17.9	C	0.65	26.7	D	0.67	27.2	D	0.65	26.7	D	0.90
Westbound Left	0.04	7.6	A	0.06	8.3	A	0.06	8.3	A	0.06	8.3	A	0.90
Jackson Street at McAndrews Road													
Westbound All	0.55	27.1	D	**1.08**	**>80**	**F**	**0.96**	**87.8**	**F**	**1.02**	**>80**	**F**	**E**
Jackson Street at Columbus Avenue													
All-Way Stop	0.70	23.5	C	0.88	56.7	E	0.88	57.6	E	0.88	56.7	E	E

(1) Signals Optimized with 60 sec Min and 120 sec Max Cycle length

The data in Table 3-6 indicates that five intersections in the Market Alternative are expected to exceed either the State V/C standard or the City's operational standard for intersection level of service. These intersections include:

- OR 238 at Ross Lane
- Main Street at Columbus Avenue
- Main Street at Ross/Lozier Lane
- Stewart Avenue at Lozier Lane
- Jackson Street at McAndrews Road

2023 TOD Alternative

Table 3-6 also presents the results of the intersection level traffic operations analysis for the TOD alternative. Detailed traffic operations calculations for 2030 conditions are included in Appendix I.

The data in Table 3-6 indicates that six of the intersections evaluated with the TOD Alternative indicated a reduction in delay from the No Build Alternative. These intersections included Highway 62 at Highway 99/OR 238, OR 238 at Ross Lane, 8th Street at Oakdale Avenue, Main Street at Oakdale Avenue, Main Street at Columbus Avenue, and Main Street at Ross/Lozier Lane. The trip differences between the alternatives are nominal and have little impact on the resulting overall intersection operations.

Traffic operations analysis indicates that five intersections are expected to exceed either the State V/C standard or the City's operational standard for intersection level of service with the TOD Alternative. No additional intersections are anticipated to exceed operational standard for either V/C or average intersection delay. These intersections include:

- OR 238 at Sage Road
- OR 238 at Ross Lane
- Main Street at Ross/Lozier Lane
- Stewart Avenue at Lozier Lane
- Jackson Street at McAndrews Road

The intersection of Main Street with Columbus Avenue is expected to just meet the City's LOS D standard with the TOD Alternative. Accordingly, it does not show up on the foregoing list of deficiencies.

3.5 2023 AND 2030 INTERSECTION IMPROVEMENT NEEDS

Table 3-7 summarizes the various transportation system improvements that were evaluated at each of the failing intersections for 2023 and the operational performance that would result. This analysis focuses on the No Build Alternative as the other two Alternatives would not result in significantly different traffic operating performance at the impacted intersections.

One of the intersections, Main Street at Ross/Lozier Lane, would require the addition of east/west through lanes and a dual eastbound left turn lane to meet the City's LOS D standard. As this location lies in the center of the proposed Transit-Oriented Development project, significant widening at this intersection would not be consistent with an overall goal of enhancing the pedestrian environment and encouraging the use of alternative travel modes. Consistent with the action taken by the Medford City Council for setting an alternative

service level threshold at the intersection of Barnett Road with North Phoenix Road, an alternative performance standard could be adopted at this location. If an LOS E standard were adopted, the addition of a second eastbound and westbound through lane would still be needed.

Two of the intersections would require the addition of dual turning lanes to meet applicable performance standards. This would also require the addition of dual receiving lanes for sufficient distance to permit well-balanced lane utilization through the intersection. These two intersections include OR 238 at Sage Road and OR 238 at Ross Lane (which would both need a dual westbound left turn lanes). These improvement needs were not identified in the City's Transportation System Plan (TSP) as adopted in 2003.

Two intersections would require added single turning lanes. Consistent with the City's TSP, the intersection of Main Street with Columbus Avenue would require north- and southbound lefts and a southbound right turn lane. The intersection of Stewart Avenue with Lozier Lane would require an added westbound right turn lane. This intersection is not identified for improvement in the City's TSP. The intersection of Jackson Street with McAndrews Road would only require signal installation consistent with the TSP. Intersection operations analysis worksheets for the various improvements identified for 2023 are included in Appendix J.

Table 3-7. Peak Hour 2007 and 2023 Intersection Operations with Improvements

	2007			2030 No Build			
Signalized Intersections	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**Applicable Standard**
OR 238 at Sage Road							
• With existing geometry	0.83	67.9	E	**0.96**	**68.0**	**E**	**0.90**
• Add NB, SB & EB rights & 2nd WB left				0.80	43.6	D	0.85
OR 238 at Ross Lane							
• With existing geometry		Unsignalized		**1.04**	**33.4**	**C**	**0.90**
• Add EBR and 2nd WB left				0.68	18.3	B	0.85
Main Street at Columbus Avenue							
• With existing geometry	0.81	39.4	D	**0.95**	**57.7**	**E**	**D**
• Add NB/SB protected lefts, and SB right				0.80	51.2	D	D
Main Street at Ross/Lozier Ln (1)							
• With existing geometry	0.86	34.7	C	**1.03**	**74.6**	**E**	**D**
• Add 2nd EB/WB thru lanes				**0.95**	**56.7**	**E**	**D**
• Add above + 2nd EB left				0.85	42.1	D	D
Stewart Avenue at Lozier Lane							
• With existing geometry	1.04	42.1	C	**1.01**	**60.3**	**E**	**D**
• Add WB right turn lane				0.76	22.0	C	D
Jackson Street at McAndrews Rd							
• Existing WB All w/o signal	0.55	27.1	D	**1.08**	**>80**	**F**	**D**
• Signalize intersection				0.46	8.0	A	D

Note 1: Bold type in the column entitled "Applicable Standards" means that the standard would not be met with the proposed improvement.
Note 2: NB means northbound, SB means southbound, EB means eastbound, and WB means westbound.
(1) City LOS Policy for this intersection could be revised, if appropriate, and increased to LOS E to encourage walking and bicycling at the heart of the TOD.

Table 3-8 presents a summary of intersection improvement needs based on the analysis of projected 2030 peak hour traffic volumes. All of the improvement options suggested based on 2023 peak hourly traffic projections would also be appropriate to meet peak travel needs

in 2030 with one addition. At the intersection of Main Street with Columbus Avenue, eastbound and westbound right turn lanes would be needed to accommodate the growth in traffic between 2023 and 2030.

In addition to the list of improvements identified above for the impacted intersections, the intersection of Jackson Street with Columbus Avenue would also be adversely impacted by traffic growth during the 2030 peak hour. This intersection would operate at an acceptable level of service in 2023 based on the analysis conducted for this report. Consistent with the recommendation in the City's TSP, signalization of this intersection would adequately address the improvement requirement. Intersection analysis worksheets for 2030 improvements are also included in Appendix J.

Table 3-8. Peak Hour 2007 and 2030 Intersection Operations with Improvements

	2007			2030 No Build			
Signalized Intersections	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**V/C Ratio**	**Average Delay (sec/veh)**	**LOS**	**Applicable Standard**
OR 238 at Sage Road							
• With existing geometry	0.83	67.9	E	**1.07**	**>80**	**F**	**0.90**
• Add NB, SB & EB rights & 2nd WB left				0.81	64.5	E	0.85
OR 238 at Ross Lane							
• With existing geometry		Unsignalized		**1.04**	**33.4**	**C**	**0.90**
• Add EBR and 2nd WB left				0.73	12.6	B	0.85
Main Street at Columbus Avenue							
• With existing geometry	0.81	39.4	D	**0.95**	**57.7**	**E**	**D**
• Add SB, EB & WB rights, NB/SB protected lefts				0.81	25.4	C	D
Main Street at Ross/Lozier Lane							
• With existing geometry	0.86	34.7	C	**1.03**	**74.6**	**E**	**D**
• Add 2nd EB/WB thru lanes				**78.2**	**1.02**	**E**	**D**
• Add above + 2nd EB left				0.92	52.7	D	D
Stewart Avenue at Lozier Lane							
• With existing geometry	1.04	42.1	C	**1.01**	**60.3**	**E**	**D**
• Add WB right turn lane				0.86	23.7	C	D
Jackson Street at McAndrews Rd							
• Existing WB All w/o signal	0.55	27.1	D	**1.08**	**>80**	**F**	**D**
• Signalize intersection				0.50	8.4	A	D
Jackson Street at Columbus Ave							
• Existing All-Way Stop w/o signal	0.70	23.5	C	**0.95**	**83.2**	**F**	**D**
• Signalize intersection				0.79	14.8	B	D

Note 1: Bold type in the column entitled "Applicable Standards" means that the standard would not be met with the proposed improvement.

Note 2: NB means northbound, SB means southbound, EB means eastbound, and WB means westbound.

3.6 PRELIMINARY TSP AMENDMENTS

Based on an assessment of the proposed street plan identified in Figure 1, no changes to the functional classification system of streets in the Medford Transportation System Plan (TSP) are proposed. The transportation elements for the West Main Street Transit-Oriented Development area should be adopted by City Council consistent with city procedures for a Neighborhood Circulation Plan, and the need for a TSP amendment is not anticipated.

During the next full update to the Medford TSP, consideration should be given to extending the analysis year to 2030 (or beyond) and to updating the list of necessary roadway and intersection improvements consistent with the findings of this study and/or later studies conducted as part of the TSP update.

Appendix Z – Tech Memo #5

Implementation
Appendix: Draft Zoning Code
West Main TOD
Preliminary Draft of September 11, 2007

Appendix 1

Preliminary Draft West Main TOD Overlay District Land Development Code Text

Existing Sections 10.370 through 10.385(Southeast Overlay District) of the Medford Land Development Code were used as the base for the West Main TOD Overlay District Land Development Code Text.

10.XX0 Objectives of the West Main (W-M) Overlay District

The West Main (W-M) Overlay District is intended to:

A. Assure that land use and development occur in accordance with the *Medford Comprehensive Plan* – West Main TOD Plan section;

B. Establish land use patterns and development design that emphasizes transportation connectivity and promotes viability for many modes of transportation;

C. Establish mixed use nodes with commercial, employment, and residential uses, and provide standards and incentives for compact, pedestrian-oriented, mixed-use development in the Overlay District;

D. Require coordinated planning of the West Main TOD Plan, and encourage the development of neighborhoods with a cohesive design character;

E. Establish special design and development standards for streetscapes, building orientation, setbacks, building height, access, lot coverage and density, alleys, street trees, and pedestrian street lighting;

F. Provide a mix of compatible housing types at planned densities, including in Planned Unit Developments (PUDs);

10.XX1 Scope and Applicability, West Main (W-M) Overlay District.

The W-M Overlay District applies automatically upon annexation to the City of Medford to the West Main TOD Plan Area designated on the City of Medford General Land Use Plan Map. Land use and development within the W-M Overlay District shall conform to the W-M Overlay District regulations, in addition to all other applicable City regulations.

10.XX3 General Land Use Plan Map, West Main TOD Plan Map, Zoning, and Residential Density, W-M.

1. General Land Use Plan Map Designations, Zoning, and Residential Density.
   The General Land Use Plan Map designations, zoning, and residential densities permitted in the W-M Overlay District are provided in Figure 10.XX3.

2. Special Residential Density Provisions for the W-M Overlay District.

   a. Minimum permitted residential density is 5.0 units per acre in SFR-10 for the portion(s) of a development where dwellings receive sole vehicular access from an alley.

   b. Minimum permitted density in commercial zones is 12.0 units per acre.

   c. Maximum permitted residential density is 36.0 units per acre in MFR-30, C-S/P, and C-C, plus the 20% density bonus permitted in a PUD, and mixed-use buildings as defined herein shall have a maximum density requirement of 60 units per acre within Commercial zones.

FIGURE 10.XX3: West Main TOD General Land Use Plan Map, Zoning, and Residential Density

General Land Use Plan Map Designation		**Permitted Zoning**	**Permitted Residential Density Range Du/Ac[3] (PUD Du/Ac)[4]**
UR		SFR-10 with alleys[2]	5.0 to 10.0[2]
		SFR-10 without alleys	6.0 to 10.0 (12.0)[4]
UMDR /UHDR		MFR-15	10.0 to 15.0 (18.0)[4]
		MFR-20	15.0 to 20.0 (24.0)[4]
		MFR-30	20.0 to 36.0 (43.2)[4]
Commercial and Service Commercial		C-C and C-S/P	12.0 to 36.0 (43.2)[4]
		Mixed-Use Buildings	12.0 to 60.0[5]
Parks and Schools (UR Underlying)			Not Applicable

Table Footnotes:
[2] Special density provisions for SFR- 10.
[3] Du/Ac = Dwelling units per acre.
[4] The maximum residential densities with the 20% increase permitted by MLDC 10.230 D. (8.) for PUDs are shown in parentheses.

10.XX4 Planned Unit Development and Master Plan Requirements, W-M.
In approving PUD applications for projects within the W-M Overlay District, the Planning Commission shall find that the application conforms to the W-M Overlay District standards. The Planning Commission may grant modifications of City standards, including provisions of the W-M Overlay District, under MLDC 10.230 (D), except for the prohibited uses in 10.XX8 (4.).

1. Building Setbacks.
   The W-M Overlay District modifies the building setback standards of the underlying zones as follows:
   a. The minimum front yard setbacks in all residential zones are 15 feet for building walls and 20 feet for garage entrances, except that side-loaded garages (where vehicular access to the street is parallel to the street) may be set back 15 feet. Front porches, canopies, awnings, porticos, arcades, patio walls (if the patio wall is constructed of stucco, brick, stone/faux stone, or a similar finish and does not exceed five and a half feet in height), and similar architectural projections may be placed within nine feet of the front property line, provided that they do not encroach onto any public utility easement.

   b. The minimum rear yard setbacks for garage entrances having alley access are as follows:
      (1) 18 feet for a garage with head-in parking on the driveway apron;

      (2) Four feet for a side-loaded garage (where vehicular access to the alley is parallel to the alley);

      (3) Eight feet for a garage having parallel parking only or no parking between the garage entrance and the alley.

   c. Setbacks of the underlying zones are also modified by the following sections of the W-M Overlay District:
      (1) Special design standards for attached housing (MLDC 10.XX6);

      (2) Special design standards for Commercial areas (MLDC 10.XX7);

      (3) Special fencing standards (MLDC 10.XY2).

      (4) Standards for development abutting Arterial or Collector streets (MLDC 10.XY3).

10.XX6 Special Design Standards for Attached Housing, W-M

Except as provided in MLDC 10.XX7 for the Commercial zones, the following standards apply to attached housing types (townhouses, multiple-family, duplexes, and other attached dwellings) in the W-M Overlay District.

1. Primary Dwelling Entrances.
   Primary dwelling entrances shall face a street, or face a courtyard, breezeway, or lobby that is visible from and connected to the street sidewalk. For a group quarters or residential facility, such as a congregate or retirement facility, one primary entrance must meet this requirement.

For purposes of this Section, a "courtyard" is an enclosed yard through which pedestrian access is provided to a building.

2. Garages.
When provided for attached housing, garages shall meet one of the standards in (a.) through (c.), and shall additionally meet both (d.) and (e.):

   a. The garage is accessed via an alley or internal drive (required for groups of two or more free-standing garages); or

   b. The garage door(s) is flush with the front or street side building elevation, does not exceed 50% of the entire front or street side building elevation, and the garage door(s) is constructed of material(s) that is compatible with the appearance of the rest of the building; or

   c. The garage door(s) is set back from the front or street side building elevation or from a covered porch by at least six feet. To meet this standard, the front or street side building elevation and/or porch must account for at least 30% of the length of the building facing the street.

   d. Carports are not permitted.

   e. Groups of two or more freestanding garages shall be set back from adjacent streets by at least 20 feet. Frontage landscaping shall be provided to create a visual buffer between group(s) of freestanding garages and adjacent streets.

10.XX7 Special Design Standards for Commercial Areas

The following design standards apply to the Commercial zones.

1. Building Orientation (Build-to Lines).
At least 50% of the length of the ground level street-facing façade of a building must be located at the minimum street setback line or abut a public plaza, as defined herein that adjoins a street. No structure, driveway, or motor vehicle parking area may be closer than the minimum street setback line, except where provided for direct vehicle access to the street, and except for fences and patio walls under MLDC 10.XX5 (2.)(a.) and 10.XY2.

2. Building Setbacks.
The W-M Overlay District modifies the building setback standards of the underlying zones as follows:

   C-S/P Zones – There is no minimum front or street side yard setback, and the maximum street or public plaza setback is 15 feet;

3. Primary Building Entrances.
Buildings shall provide entrances that conform to the following standards:

   a. Commercial, institutional, and the non-residential portion of mixed-use buildings shall have a primary building entrance that either faces an adjacent street or is placed at an angle of up

to 45 degrees from an adjacent street, measured from the property line abutting the right-of-way. Buildings adjacent to, or within 200 feet of a transit stop or station shall orient a primary building entrance to face the stop or station.

b. When located at the intersection of two streets, a commercial, institutional, and the non-residential portion of a mixed-use building shall do one of the following:

(1) Provide two primary building entrances, one facing each street; or

(2) Orient one primary building entrance to both streets by placing the entrance at the street corner; or

(3) Place one primary building entrance facing one street that it is not more than 20 feet from either street measured from the property line abutting the right-of-way.

d. Residential buildings, except for detached single-family residences shall conform to the standards in (a.) and (b.), or provide a pedestrian walkway for access to transit stops or stations meeting the provisions of MLDC 10.XX5 and 10.XX6. Detached single-family residences shall provide a primary entrance facing one adjacent street. A primary building entrance for a residential building may face a porch or patio that is located between the building and street.

4. Ground Floor Windows.
Commercial, institutional, and the non-residential portion of mixed-use buildings shall provide ground floor windows that conform to the following standards:

a. Ground floor windows shall cover at least 50% of the horizontal length and at least 25% of the ground floor wall area of all building facades that face a street or public plaza. This requirement does not apply to the walls of residential units, nor to the walls of parking structures when set back at least ten feet and screened with landscape materials in conformance with MLDC 10.797.

b. Required window areas must be either transparent windows that allow views into working areas or lobbies; pedestrian entrances; or transparent display windows set into the wall. Display cases attached to the outside wall do not qualify. The bottom of the windows must be no more than four feet above the adjacent exterior grade. Only clear or lightly tinted glass in windows, doors, and display windows shall be considered transparent. Transparent areas shall allow views into the structure or into display windows from the outside.

5. Windows on Street-Facing Facades on Residential Buildings.
At least 15% of the area of each façade on all floors or stories that face a street on all residential buildings or residential portion of a mixed use building must be windows, primary building entrance doors, porches, balconies, and/or a similar visual or physical access way for natural surveillance of the street. Windows used to meet this standard must allow views from the building to the street. Glass block and similar sight-obscuring surfaces do not meet this standard. Windows in garage doors and garage walls count toward meeting this standard.

6. Landscaping and Pedestrian Amenities.

    a. The following is the minimum amount of landscaped open space required within the Commercial zones:

        (1) C-C zone: 10% of the project site area.

        (2) C-S/P and other zones not listed in (1) through (3): 20% of the project site area.

    b. Notwithstanding MLDC 10.797, all land between buildings and/or other structures and the right-of-way shall be treated with a combination of landscaping and hard surfacing for use by pedestrians. Subject to City review and approval, extra-wide public sidewalks may provide for pedestrian amenities such as benches, drinking fountains, and/or other design elements (e.g., public art, planters, and kiosks). Weather protection elements such as awnings, canopies, porticos, covered entrances, porches, covered seating (e.g., bus waiting areas), and/or similar elements may encroach into a required setback or the public right-of-way when approved through Site Plan and Architectural Review or as part of a PUD.

10.XX8 Additional Standards for Commercial Zones

The West Main TOD Overlay District modifies the provisions of the underlying zones in the Commercial Zones as follows:

1. Outdoor Uses.
   Except as provided in (a.) through (c.), all uses, activities, sales, merchandise, and the stockpiling and storage of equipment and materials shall be entirely within an enclosed building. The following uses may be outside an enclosed building:

    a. Outdoor eating areas pursuant to 10.833.

    b. Temporary outdoor sales of merchandise pursuant to MLDC 10.831;

    c. Temporary uses pursuant to MLDC 10.841 through 10.858;

    d. Parks, playgrounds, greenways, outdoor performing arts facilities, outdoor sports facilities, plazas, pedestrian malls, and news racks in conformance with Chapter 6 of the Medford Municipal Code.

2. Prohibited Uses.
   Notwithstanding MLDC 10.337, the following uses are not permitted in the Commercial areas and cannot be permitted through a PUD approval:

SIC No. *	**Commercial Areas Prohibited Uses**
NA	Drive-through retail and service windows (including, but not limited to, restaurants, banks, and pharmacies)
SIC 551, 552, 555, 556, 557, 559, 751, 753, 754	Motor vehicle sales and repair (including, but not limited to, autos, trucks, boats, RVs, and airplanes)
SIC 271	Newspaper Printing Facilities
SIC 6553	Cemeteries and Mausoleums
SIC 7218	Industrial Laundries
SIC 7692	Welding Shops
SIC 7699	Agricultural Equipment Repair, Engine Repair, Industrial Truck Repair, and Septic Tank Services
SIC 7948	Outdoor Race Tracks
SIC 9223	Correctional Institutions

* The SIC numbers correspond to the Standard Industrial Classification (SIC) Code numbers found in MLDC 10.337.

3. Off-Street Motor Vehicle Parking.

    a. Except for residential and group quarters uses, the number of off-street motor vehicle parking spaces provided for each use shall not exceed 120% of the minimum standard for the subject use.

    b. Shared motor vehicle parking spaces, even where there is overlap in time of use, and reciprocal access and use may be permitted if authorized by the approving authority.

4. Pedestrian Amenities.
   For every ten square feet of site area developed with commercial, institutional, residential, and/or mixed-use development, at least one square foot of area shall be devoted to pedestrian

amenities. These may include amenities provided by the developer on public property or right-of-way with City authorization. Pedestrian amenities may include, but are not limited to, public and/or private plazas, outdoor seating, pocket parks, transit waiting areas and facilities, extra-wide sidewalks (wider than minimum City standard) with street furnishings (e.g., seating, fountain, public art, information kiosk, sidewalk vending where permitted, and similar furnishings). This ratio may be reduced or waived for projects that provide parking structures for multiple users, subject to approval by the approving authority and recorded shared parking agreement.

10.XX9 Streetscape, Planter Strip, and Street Tree Standards, W-M

Within the W-M Overlay District, streetscape features, planter strips, and street trees shall be improved and/or installed as provided below.

1. Streetscape and Planter Strip Plan Required.
   A Streetscape and Planter Strip Plan shall be submitted as part of an application for a Land Division, Preliminary PUD Plan, Transportation Facility, Site Plan and Architectural Review, or Conditional Use Permit, except when the project site has no public or private street frontage, or a Streetscape and Planter Strip Plan has been previously approved for the site frontage. The approving authority shall approve, conditionally approve, or disapprove the Plan after review and recommendations from City staff.

   a. Plan Content. The form and number of copies of the Streetscape and Planter Strip Plan shall be as set forth in the application materials on file in the Medford Planning Department. The Plan shall include details regarding the proposed design of the entire area between the curb and the property line, including sidewalks, landscaping, street trees, street lights, utility poles, traffic signals, and transit stops. It shall acknowledge that an appropriately designed automatic underground irrigation system will be provided. The street trees indicated in the Plan shall meet the requirements in (2.) through (6.). Street lighting indicated in the Plan shall meet the requirements of MLDC 10.380. The Plan shall also include streetscape features, such as traffic calming measures, required by any adopted Neighborhood Circulation Plan, , special area plan, or other adopted plans.

   b. Landscaping Installation and Continued Maintenance. Except for planter strips and medians in Arterial streets, and for medians in Collector streets, installation and maintenance of the approved landscaping, including street trees, shall be a continuing responsibility of the owners of the abutting property or another responsible entity and shall be assured through CC&Rs, property owner association agreements, or the conditions of approval for PUDs, Site Plan and Architectural Reviews, or Conditional Use Permits.

2. Street Trees and Right-of-Way Landscaping Required.
   Street trees and right-of-way landscaping shall be planted and maintained along all public or private streets as a condition of the following actions. Trees on private and public property are also regulated elsewhere in this Municipal Code, including in Sections 6.700 through 6.750.

   a. As a condition of approval for any subdivision, land partition, or PUD; or,

b. As a condition of approval for any development requiring Site Plan and Architectural Review; or,

c. As part of the project when Arterial and Collector streets dedicated, or intended to be dedicated, for public use are constructed or improved ; or,

d. As a condition for a permit to remove a street tree when replacement is required.

3. Street Tree Spacing Standards.
Where within or abutting residential zones on the same side of the street, street trees shall be installed to provide not less than a 100 percent canopy cover over the sidewalk at the time of tree maturity. Within or abutting commercial zones on the same side of the street, street trees shall be installed to provide not less than a 70 percent canopy cover over the sidewalk at tree maturity. Canopy cover shall be based on tree maturity and growth habit data provided in the *Official List of City of Medford Approved Street Trees,* a copy of which is on file in the City of Medford Parks Department. Street trees shall not be located within 20 feet of the corner of an intersection of two streets measured at the curb line. Where trees are required in on-site street frontage landscaping pursuant to MLDC 10.797, street trees located in the right-of-way may be counted towards this requirement on a one to one basis at the discretion of the approving authority.

4. Street Tree Types; Minimum Tree Size.

   a. Appropriate tree species, variety and cultivars shall be selected from the *Official List of City of Medford Approved Street Trees*, a copy of which is on file in the City of Medford Parks Department.

      The approving authority shall consider tree type selections based on the following:

      (1) Maximizing tree canopy size at maturity to provide maximum shading.

      (2) Avoiding conflicts with utilities, street lighting, and traffic visibility.

      (3) Meeting unique site aesthetic considerations.

      (4) Ensuring tree type diversity within a multi-block area.

   b. New street trees shall have a minimum trunk diameter of two inches measured 12 inches from the ground.

5. Location of Street Trees.

   a. Street trees shall be planted within the planter strips located between the curb and the sidewalk, no closer than three feet from the curb line. For those commercial areas where no planter strips are planned, tree wells with grates shall be used, the design of which shall be as approved in the Streetscape and Planter Strip Plan.

   b. If no planter strip or tree wells exist, required street trees may be planted within the street right-of-way, or on private property, subject to the following conditions:

(1) The street trees may be planted between the edge of the street improvements and street right-of way line provided that the tree is no closer than three feet from the planned curb line and not within a planned sidewalk.

(2) For any street tree planted within a public utility easement, a deed restriction shall note that tree replacement due to utility work is the responsibility of the property owner.

(3) Any street tree planted within six feet of or inside a public street right-of-way, or in a public utility easement, shall be planted with a City-approved root controlling design.

(4) When necessary, the street trees may be planted on private property not more than ten feet back from the street right-of-way line. When required street trees are planted on private property, deed restrictions shall be recorded indicating that such trees are subject to the same City of Medford regulations as street trees within a public right-of-way.

6. Timing for Installing Street Trees and Right-of-Way Landscaping; Security to Guarantee Installation.

a. Single-Family Residential Land Divisions. The planting of street trees and right-of-way landscaping may be deferred for new single-family lots until dwellings are constructed, at which time street trees and landscaping conforming with the approved Streetscape and Planter Strip Plan and this Section shall be planted within 30 days after occupancy of the dwelling. When the planting of street trees and landscaping is deferred, the developer shall enter into an agreement with the City and post security to ensure compliance.

b. Multiple-Family Residential, Commercial, and Institutional Development. Street trees and planter strip landscaping conforming with the approved Streetscape and Landscape Plan and this Section shall be planted in conjunction with new multiple-family residential, commercial, and institutional development. As a condition of a PUD, Site Plan and Architectural Review, or Conditional Use Permit approval, the developer shall enter into a recorded Building Site Improvement Agreement that ensures compliance with this Section.

c. New Dwellings; Relocated Dwellings. For new or relocated dwellings on existing lots not subject to (a.) or (b.), street trees and landscaping conforming with the approved Streetscape and Landscape Plan and this Section shall be planted within 30 days after occupancy. As a condition of the issuance of the building permit, the developer shall enter into a recorded Building Site Improvement Agreement that ensures compliance with this Section.

d. Security to Guarantee Street Tree Installation. If an agreement required to defer street tree and landscape planting under this Section stipulates the posting of security, the applicant and all owners of the subject parcel, prior to issuance of the building permit or final approval of an application, shall be required to sign an agreement with the City that assures planting of the trees and landscaping required by the approved Streetscape and Landscape Plan within 30 days after occupancy of the building. Such agreement shall expressly assume financial responsibility for the planting. The City shall approve the agreement prior to execution, and it shall be accompanied by a certified check, surety bond, or other security acceptable to the City to cover 125% of the estimated cost of planting the deferred street trees and landscaping.

10.XY0 Street Lighting Standards, W-M.

1. Public Streets.
   For public streets within the West Main TOD Overlay District, street lighting and pedestrian-scale street lighting meeting the design and improvement standards specified for the W-M Overlay District within the *City of Medford Street Lighting Standards and Specifications*, a copy of which is on file in the Medford Public Works Department, shall be installed as follows:

   a. At least one streetlight shall be installed at each street intersection and at any pedestrian street crossing other than at street intersections.

   b. Pedestrian-scale street lights shall be installed on both sides of lower order streets at least every 80 feet within the planter strips, or, where planter strips are not required, located within the street right-of-way at locations agreed upon by the Director of the Medford Public Works Department or designee. For Collector and Arterial streets, the use and location of pedestrian scale streetlights shall be as determined by the approving authority in the development review process.

   c. Streetlights and pedestrian-scale streetlights shall be designed or shielded so as to prevent light from being emitted above the fixture.

   d. The location of streetlights and pedestrian-scale streetlights shall be coordinated with streetscape and planter strip or street tree planting plans where required or utilized.

   e. The operation and maintenance costs for the pedestrian-scale street lighting shall be charged to the benefiting property owners through establishment of a utility fee.

2. Private Streets.
   For private streets within the West Main TOD Overlay District, street lighting and pedestrian-scale street lighting shall be installed in accordance with (1.), unless a PUD approval authorizes a modification. Legal documents shall be submitted in a form acceptable to the City Attorney prior to recording in the official records of Jackson County that assure that the street lighting and pedestrian-scale street lighting systems will be perpetually maintained and operated by individual property owners, an association of property owners, or other entity.

10.XY1 Special Street Design and Vehicle Access Standards, W-M

1. Street, Streetscape, and Vehicle Access Design.
   Streets, streetscapes, and vehicle access to individual properties within the West Main TOD Overlay District shall be located, designed, and constructed consistent with the Municipal Code and adopted *City of Medford Engineering Standards and Specifications*, except as modified by any adopted Neighborhood Circulation Plan.

2. Vehicle Access to Narrow Lots.
   Residential lots with 50 feet or less width and 50 feet or less street frontage shall receive vehicular access from an alley or additional Minimum Access Street.

10.XY2 Special Fencing Standards, W-M

a. Fences Abutting Rights-of-Way, Front Yard**.**
Notwithstanding MLDC 10.732 and except as provided for patio walls in MLDC 10.XX5 (2.)(a.), the maximum wall or fence height within a front yard abutting a street right-of-way is three feet, provided that the wall or fence shall be located on private property and no closer than two feet from the sidewalk. The fence setback area between any fencing and the sidewalk shall be landscaped, irrigated, and maintained with a combination of perennial ground cover plants and low growing (less than three feet in height) shrub plantings.

b. Fences Abutting Rights-of-Way, Side or Rear Yard.
Notwithstanding MLDC 10.732, and except as provided for patio walls in MLDC 10.XX5 (2.)(a) and for Major Arterial street frontages, the maximum wall or fence height within a rear or side yard abutting a street right-of-way is six feet, provided that the wall or fence shall be located on private property, no closer than 10 feet from the sidewalk, and must be of a consistent design and color within a single block. Open fencing having a picket design within a rear or side yard abutting a street right-of-way can be located within three feet of the sidewalk, if not exceeding five and a half feet in height, provided that the wall or fence shall be located on private property and must be of a consistent design and color within a single block. The fence setback area between any fencing and the sidewalk shall be landscaped, irrigated, and maintained by the abutting property owner, a property owners' association, or other responsible entity.

10.XY3 Standards for Development Abutting Arterial or Collector Streets, W-M

1. Purpose.
This section is intended to protect the functionality of Collector and Arterial streets, which must serve multiple modes of traffic while meeting the need for access to neighborhoods and individual uses. This section is also intended to promote an attractive and safe streetscape by orienting buildings toward the street for natural surveillance, rather than orienting backyard fences to the street.

2. Vehicular Access Standards.
Direct vehicular access to a parcel shall not be provided from an Arterial or Collector street unless none of the options in (a.) through (d.) are available; however, access shall be consistent with any adopted Neighborhood Circulation Plan.

    a. Access from a side street that is a lower-order street; or

    b. Access from an alley; or

    c. Access from a Frontage street (commercial); or

    d. Access from a shared driveway (not permitted on Arterials).

3. Through-Lots.
Notwithstanding MLDC 10.3XY (2.) and 10.704, the following applies to through-lots:

a. Detached or attached single-family residential through-lots are permitted only where an applicant can demonstrate why the creation of through-lots is unavoidable due to environmental, physical, topographical, or existing development constraints, subject to the review and approval of the approving authority.

b. Where through-lots are authorized in any zoning district, except for single-family residential through-lots on Major Arterial streets, an irrigated landscaped buffer shall be installed behind the back of the sidewalk abutting the rear yard. The landscaped buffer may be in common ownership or incorporated into extra deep lots, subject to the review and approval of the approving authority. The minimum depth of the buffer shall be at least ten feet, except where 10.XY2 (2.) permits a fence within three feet of the sidewalk. Additional depth may be required by the approving authority when necessary to provide visual buffering. Design, installation, and maintenance of the landscaped buffer shall be assured in a form acceptable to the City Attorney's Office. All required landscape improvements shall be installed or guaranteed, in conformance with City standards, prior to issuance of building permits.

Appendix 2

Proposed Medford Comprehensive Plan Goals, Policies, and Implementation Measures for the West Main TOD

Goal 1: ***To assure that development in the West Main Transit Oriented District occurs in a manner that reduces reliance on automobile travel within the area and promotes multi-modal travel, including pedestrian, bicycle and transit.***

Policy 1-A: The City of Medford shall assure that circulation and development design in the West Main Transit Oriented District emphasizes connectivity and promotes multi-modal transportation viability.

Implementation 1-A (1): Do not allow private streets to prevent vehicular or pedestrian connectivity or public access to greenways, parks, schools, or other activity centers.

Implementation 1-A (2): Discourage gated or dead-end developments because they prevent connectivity and neighborhood formation. Require adjacent developments to integrate with one another.

Implementation 1-A (3): Assure that development design and street improvements on W. Main Street, N. Ross Lane/Lozier Lane, Oak Grove Road, and W. McAndrews Road promote non-vehicular access across major intersections.

Implementation 1-A (4): Discourage development site design along collector and arterial streets from creating a walled effect near the sidewalk.

Implementation 1-A (5): Encourage the Rogue Valley Transportation District (RVTD) to maintain and/or expand transit service and provide transit facilities (e.g., bus shelters, benches, etc.) as soon as feasible.

Policy 1-B: The City of Medford shall assure that West Main Transit Oriented District Commercial areas are developed with pedestrian-oriented, mixed use, higher density nodes.

Implementation 1-B (1): Require special design for development within the Commercial zones, affecting such elements as building location and orientation, lighting, signage, parking, outdoor storage and display, etc.

Implementation 1-B (2): Limit the uses in the commercial zones to assure pedestrian-oriented development.

Implementation 1-B (3): Promote the location of public and quasi-public uses within the commercial zones, such as a fire station, day care center, community center, church, park, public plaza, etc.

Goal 2: To provide for the implementation of the West Main TOD.

Policy 2-B: Encourage similar land use types to be located facing one another across streets with changes in land use types occurring at the backs of lots where possible.

Appendix 3

Draft Code Amendments – Parking Standards

10.743 Off-Street Parking Standards
Banks: One (1) space per two hundred (200) square feet of gross floor area plus five (5) spaces of off-street waiting (loading) per drive-up window.
Bowling alley: Five (5) spaces per lane, plus one (1) space per employee on the largest work shift.
Cemetery: One (1) space per employee, plus one (1) space per four (4) visitors to the maximum seating capacity of the chapel.
Church: One (1) space per four (4) seats of maximum capacity or eight feet of bench length.
Commercial, General: One (1) space per two hundred (200) square feet of gross floor area.
Community and recreation center: One (1) space per two hundred and fifty (250) square feet of gross floor area, or one (1) space per four (4) patrons to the maximum capacity.
Drive-in theater: One (1) space per employee plus ten (10) spaces of off-street stacking per drive-up window.
Furniture Stores: One (1) space per four hundred (400) square feet of gross floor area.
[Amd. Ord. No. 6692, 8/2/90]
Golf courses (nine- and eighteen-hole): Five (5) spaces per hole, plus one (1) space per employee on the largest shift, plus seventy-five (75) percent of the spaces otherwise required for any accessory uses (e.g., bars, restaurants).
Golf driving range: One (1) space per tee.
Hospitals: Two (2) spaces per three (3) patient beds, plus one (1) space per staff doctor and each other employee on the largest work shift.
Hotel or motel: One (1) space per room, plus one (1) space per every three (3) employees on the largest work shift, plus one (1) space per three (3) persons to the maximum capacity of each public meeting and/or banquet room, plus fifty (50) percent of the spaces otherwise required for accessory uses (e.g. restaurants and bars).
Libraries and museums: One (1) space per four hundred (400) square feet of floor area or one (1) space per four (4) seats to the maximum capacity, whichever is greater, plus one (1) space per two (2) employees on the largest shift.
Light industrial, Mini-warehouse: Two (2) spaces per manager's residence, plus one (1) space per ten (10) storage cubicles.
Light industrial, Veterinary office with enclosed kennels and/or pens: Three (3) spaces per doctor, plus one (1) space per employee on the largest shift.
Light industrial, Warehouse: One (1) space per employee on the largest shift, plus one (1) space per four thousand (4,000) square feet of gross floor area.
Miniature golf: One and one-half (1.5) spaces per hole.
Nursery: One (1) space per two hundred (200) square feet of gross floor area of inside sales or display.
Nursery, Day or Child Care Center Facility: One (1) space per teacher/employee on the largest

shift, plus one (1) off-street loading space per six (6) students.
Nursing homes: One (1) space per six (6) patient beds, plus one (1) space per employee on the largest shift, plus one (1) space per staff member and visiting doctor.
Office, general: One (1) space per three hundred square feet of gross floor area. [Amd - Sec. 24, Ord. No. 5820, Mar. 19, 1987.]
Office, beauty and barber shops: Two and one-half (2.5) spaces per chair.
Office, medical offices: One (1) space per two hundred (200) square feet of gross floor area plus one (1) space per doctor.
Outdoor recreational, general: One (1) space per four (4) expected patrons at capacity.
Outdoor theater: One (1) space per three (3) patrons to the maximum capacity of the facility inclusive of both indoor and outdoor capability.
Private clubs: One (1) space per three (3) persons to the maximum capacity of the facility.
Public service use: One (1) space per employee on the largest work shift, plus one (1) space per company vehicle normally stored on the premises.
Recreational, general: One (1) space per four (4) patrons to the maximum capacity of facility, plus one (1) space per two (2) employees on the largest work shift.
Recreational vehicle park: One and one-half (1.5) spaces per each recreational vehicles site, plus one (1) space per employee on the largest shift.
Repair services: One (1) space per three hundred (300) square feet of gross floor area.
Residential, Single-Family: Two (2) parking spaces per dwelling unit. [Added - Sec. 23, Ord. No. 5820, Mar. 19, 1987.]
Residential, Multiple-Family: One and one-half (1.5) spaces per dwelling unit.
[Added - Sec. 23, Ord. No. 5820, Mar. 19, 1987.]
Restaurant, Fast-food: One (1) space per seventy-five (75) square feet of gross floor area.
Restaurant, standard: One (1) space per three (3) patron seats or one (1) space per hundred (100) square feet of gross floor area, whichever is greater.
Retirement housing: One-half (.5) spaces per dwelling unit plus one (1) space per employee on the maximum shift.
Road service, general: One (1) space per two hundred (200) square feet of gross floor area.
Schools, college: One (1) space per staff worker on the largest shift, plus one space per two (2) students of the largest class attendance period.
Schools, commercial or trade: One (1) space per three (3) students, plus one (1) space per employee (including faculty) at capacity class attendance period.
Schools, elementary: One (1) space per teacher and staff member plus one space per two (2) class rooms.
Schools, senior high: One (1) space per teacher and staff member on the largest shift, plus one (1) space per five (5) non-bused students.
Skating rink, ice or roller: One (1) space per three hundred (300) square feet of gross floor area.
Swimming facility: One (1) space per seventy-five (75) square feet of gross water area, plus one (1) space per employee on the largest shift.
Taverns, dance halls, night clubs, and lounges: One (1) space per fifty (50) square feet of gross floor area.
Tennis, racquetball, handball courts: Four (4) spaces per court, plus one (1) space per employee

on the largest shift.
Theater and auditoriums: One (1) space per three (3) patrons based on maximum capacity. This requirement may be satisfied on a space-by-space basis by a facility's providing written proof that it has the use of a nearby parking lot available to its patrons (e.g., by contractual arrangement).
Vehicle sales and service: One (1) space per fifteen hundred (1,500) square feet of gross floor area.
Vehicle repair and maintenance: One (1) space per four hundred (400) square feet of gross floor area, plus one (1) space per employee on the largest work shift.

Refer to 10.810 Redevelopment of Existing Required Parking for Transit Oriented Uses for special considers of parking requirements in areas with transit.

10.744 Joint Use of Parking Facilities
The off-street parking requirements of two or more uses, structures, or parcels of land may be satisfied by the same parking or loading space used jointly to the extent that it can be shown by the owners or operators of the uses, structures, or parcels that their operations and parking needs do not overlap in point of time. If the uses, structures, or parcels are under separate ownership, the right to joint use of the parking space must be evidenced by a deed, lease, contract, or other appropriate written and recorded document to establish the joint use.

Share motor vehicle parking spaces, even where there is overlap in time of use, and reciprocal access and use are permitted as determined through the PUD process in the TOD area.

10.745 Location of Parking Facilities

All parking spaces shall be on the same lot as the main structure it serves or on an abutting lot. However, upon demonstration by the applicant that parking on the same lot or abutting lot is not available, the approving authority may authorize the parking spaces to be on any lot within 250 feet walking distance of the structure being served upon written findings of compliance with the following provisions:
(1) There is a safe, direct, attractive, lighted and convenient pedestrian route between the parking area and the use being served;
(2) There is assurance in the form of deed, lease, contract or other similarly recorded document that the required spaces will continue to be available for off-street parking use according to the required standards.

Available on-street parking can be used to meet parking standard minimums in the TOD area. The availability of parking to meet this demand should be determined through a parking utilization analysis. The Medford TSP allows two parking lands on streets with the functional classification of standard residential and minor residential streets. No on-street parking is permitted on arterial streets and collector streets.

10.746 General Design Requirements for Parking

With the exception of storage of trailered items and recreational vehicles at single-family residences, all parking, loading, driveway, and vehicle maneuvering areas shall be paved, including, but not limited to, wheeled-vehicle sales lots, truck trailer parking areas, and on-site single-family residential driveways etc., to the following minimum design requirements:
(1) Surfacing. All surfacing shall be consistent with Section 9.550 of the City Code. Residential development may reduce the concrete standard to a four (4) inch minimum thickness. Extended single-family residential driveways shall be a minimum of ten (10) feet in width. [Amd. Ord. No. 7022, Nov. 7, 1991.]
(2) Curb Cuts. Access points with the street shall be the minimum necessary to provide access while not inhibiting the safe circulation and carrying capacity of the street. Curb cuts shall be located not closer than 5 feet to a side lot line, except that a common access way to two adjacent properties (width not exceeding 45 feet) may be provided at the common lot line. Common access ways shall be encouraged in order to reduce the number of access points to streets. Access grades shall not exceed 15% and shall be graded to allow clearance to pass a standard American automobile 15 feet in length.
(3) Parking Area Planters. Parking areas exceeding twenty-four (24) parking spaces shall contain areas of interior landscaping such as planter islands or planter projections into the parking area which comply with the planting schedule and as approved by the Site Plan and Architectural Commission. It is the purpose of this section to create shade and visual relief for large expanses of parking. Therefore, the planter areas shall be dispersed throughout the parking area and the tree species shall have a moderate to broad spreading canopy. All trees shall be planted with root barrier guards. All shrubs shall be kept less than three (3) feet in height so as not to obstruct driver vision. Removal of detrimental construction materials and proper soil volume and preparation shall occur prior to planting. The minimum landscaped area and number of required plants per twenty-four (24) spaces is as follows:

District	Plants/24 Spaces trees	shrubs	Sq. Ft./24 Spaces
SFR (Nonresidential uses), MFR 20, MFR-30, C-N			
	2	4	300
C-S/P, C-C, C-H, C-R	3	6	450
I-L, I-G, I-H	2	4	300

[Amd. Sec. 4, Ord. No. 7786, Dec, 15, 1994; Amd. Sec. 14, Ord. No. 8285, Feb. 6, 1997.]
(4) Irrigation Systems. All landscaped areas shall be irrigated with a permanent irrigation system unless a licensed landscape architect submits written verification that the proposed plant materials do not require irrigation. (5) Conformity with Code. No building or structure shall be changed or enlarged without the inclusion of additional parking spaces in conformance with the requirements of this code. The requirements of this code shall apply only to the additional

parking necessitated by the change in use or building expansion.
(6) D.E.Q. Indirect Source Construction Permit. All parking areas, where applicable, shall be subject to review and approval by the Department of Environmental Quality (D.E.Q.).
(7) Final Certificate of Occupancy. No Final Certificate of Occupancy shall be granted to any structure until the parking areas are completed and ready for use.
(8) Disabled Person Parking. Disabled person parking spaces shall be provided at the following rate: One (1) space for parking areas from 6 - 25 spaces. Two (2) spaces for parking areas from 26 - 50 spaces. One (1) additional space for each additional 100 spaces. The disabled person parking symbol shall be painted on the parking space and a disabled person parking sign shall be placed in front of each space.
Disabled person parking spaces shall be a minimum of nine (9) feet wide and shall have an adjacent access aisle a minimum of six (6) feet in width located on the passenger side of the parking space, except that two (2) adjacent parking spaces may share an aisle. The access aisle shall abut pedestrian access to the building and there shall be no ramps within the aisle or parking spaces.
[Amd. Ord. No. 7022, Nov. 7, 1991.]
(9) Screening. Where parking, vehicle maneuvering, or loading areas abut a public street, there shall be provided a minimum ten (10) foot wide landscaping buffer.
[Amd. Sec. 4, Ord. No. 8010, Dec. 21, 1995.]

(a) Locate buildings near street frontages and parking to the side or rear of the site in order to be more pedestrian friendly in the TOD area.
(10) Parking, Required Yard. Parking and loading spaces and their maneuvering area shall not be located in a required yard, except as follows:
(a) In a SFR or MFR zone, parking lots with more than three (3) spaces that do not back directly into the street may encroach to within ten (1) feet of a street right-of-way.
(b) When creating a common driveway with an adjacent parcel.
(c) At a single-family residence in a SFR zone, paving may be located within a required side or rear yard.
[Amd. Sec. 8, Ord. No. 5986, Oct. 1, 1987; Amd. Sec. 4, Ord. No. 7786, Dec. 15, 1994; Amd. Sec. 4, Ord. No. 8010, Dec, 21, 1995; Amd. Ord. No. 8195, Sept. 19, 1996.]
(11) Driveways. All driveways shall be improved to the standards set forth in Article IV, Section 10.550, Driveway Approaches. Residential driveways on arterial and collector streets shall comply with the minimum turnaround standards as illustrated below:(see graphic image at bottom of page)
(12) Aisles. Except for single or two family dwellings, groups of more than three parking spaces shall be provided with adequate aisles or turnaround areas so that all vehicles may enter the street in a forward manner. [Amd. Sec. 4, Ord. No. 8010, Dec, 21, 1995.]
(13) Minimum Clearance. Driveways, aisles, turnaround areas and ramps shall have a minimum vertical clearance of at least twelve feet for their entire length and width but such clearance may be reduced in parking structures.
(14) Drainage. Adequate drainage shall be provided to dispose of the run-off generated by the impervious surface area of the parking area. Provisions shall be made for the on-site collection of drainage waters to eliminate sheet flow of such waters onto sidewalks, public rights-of-way, and

abutting private property.
(15) Connect Parking Areas. Parking areas with access to arterial or collector streets shall be so designed as to connect with existing or future parking areas on adjacent sites thereby eliminating the necessity of utilizing the arterial or collector street for cross movements.
(16) Parking Lot Dimension Standards.

a	b	c	d	e	f(1)	f(2)
0 deg.	8'0"	8.0	12.0	23.0	28.0	--
"	8'6"	8.5	12.0	23.0	29.0	--
"	9'0"	9.0	12.0	23.0	30.0	--
"	9'6"	9.5	12.0	23.0	31.0	--
"	10'0"	10.0	12.0	23.0	32.0	--
20 deg.	8'0"	14.0	11.0	23.4	39.0	31.5
"	8'6"	14.5	11.0	24.9	40.0	32.0
"	9'0"	15.0	11.0	26.3	41.0	32.5
"	9'6"	15.5	11.0	27.8	42.0	33.1
"	10'0"	15.9	11.0	29.2	42.8	33.4
30 deg	8'0"	16.5	11.0	16.0	44.0	37.1
"	8'6"	16.9	11.0	17.0	44.8	37.4
"	9'0"	17.3	11.0	18.0	45.6	37.8
"	9'6"	17.8	11.0	19.0	46.6	38.4
"	10'0"	18.2	11.0	20.0	47.4	38.7
40 deg	8'0"	18.3	13.0	12.4	49.6	43.5
"	8'6"	18.7	12.0	13.2	49.4	42.9
"	9'0"	19.1	12.0	14.0	50.2	43.3
"	9'6"	19.5	12.0	14.8	51.0	43.7
"	10'0"	19.9	12.0	15.6	51.8	44.1
45 deg.	8'0"	19.1	14.0	11.3	52.2	46.5

"	8'6"	19.4	13.5	12.0	52.3	46.3
"	9'0"	19.8	13.0	12.7	52.6	46.2
"	9'6"	20.1	13.0	13.4	53.2	46.5
"	10'0"	20.5	13.0	14.1	54.0	46.9
50 deg	8'0"	19.7	14.0	10.5	53.4	48.3
"	8'6"	20.0	12.5	11.1	52.5	47.0
"	9'0"	20.4	12.0	11.7	52.8	47.0
"	9'6"	20.7	12.0	12.4	53.4	47.3
"	10'0"	21.0	12.0	13.1	54.0	47.6
60 deg	8'0"	20.4	19.0	9.2	59.8	55.8
"	8'6"	20.7	18.5	9.8	59.9	55.6
"	9'0"	21.0	18.0	10.4	60.0	55.5
"	9'6"	21.2	18.0	11.0	60.4	55.6
"	10'0"	21.5	18.0	11.5	61.0	56.0
70 deg	8'0"	20.6	20.0	8.5	61.2	58.5
"	8'6"	20.8	19.5	9.0	61.1	58.2
"	9'0"	21.0	19.0	9.6	61.0	57.9
"	9'6"	21.2	18.5	10.1	60.9	57.7
"	10'0"	21.2	18.0	10.6	60.4	57.0
80 deg	8'0"	20.1	25.0*	8.1	65.2	63.8
"	8'6"	20.2	24.0*	8.6	64.4	62.9
"	9'0"	20.3	24.0*	9.1	64.3	62.7
"	9'6"	20.4	24.0*	9.6	64.4	62.7
"	10'0"	20.5	24.0*	10.2	65.0	63.3
90 deg.	8'0"	19.0	26.0*	8.0	64.0	--
"	8'6"	19.0	25.0*	8.5	63.0	--

"	9'0"	19.0	24.0*	9.0	62.0	--
"	9'6"	19.0	24.0*	9.5	62.0	--
"	10'0"	19.0	24.0*	10.0	62.0	--
** 90 deg	8'0"	18.5	22.0*	8.0	59.0	--
"	8'6"	18.5	21.0*	8.5	58.0	--
"	9'0"	18.5	20.0*	9.0	57.0	--

* Two-way circulation.
** Back in. For attendant parking only. Two-way traffic in aisles possible, but not desirable.

(see graphic image at bottom of page)
(17) Compact Cars. A maximum of twenty (20) percent of the total required parking may be improved as compact parking spaces. All compact parking spaces must be identified for compact parking only. Compact parking space shall have the following minimum dimensions:
Width - as per the table in (17) above.
Length - reduce column "c" in the table in (17) above by three (3) feet.
[Added - Sec. 27, Ord. No. 5820, Mar. 19, 1987.]

10.808 New Commercial and Institutional Development

All new commercial, office and institutional buildings on parcels within 600 feet of an existing or planned transit route, as designated by the transit provider, shall provide the following:
(1) Building entrances. All such uses shall provide a main entrance on the facade of a building nearest to and facing a designated transit street or route. A building may have more than one main entrance. If the lot has frontage on more than one transit street, the building need only have one main entrance oriented to a transit street or to the corner where two transit streets intersect.
(2) Setbacks. Buildings shall be set back no more than 20 feet from the designated transit stop or transit street. Where the site is adjacent to more than one designated transit street, a building is required to meet the maximum setback standard on only one of the streets.
(3) Parking lots. No automobile parking shall be permitted between the building and the designated transit street.
(4) An exception to one or more of the requirements in this section may be granted if the approving authority determines that:
(a) Strict compliance with the standard is not possible because of terrain or other physical conditions beyond the control of the applicant; or,
(b) Strict compliance with the terms of this section would not serve the purpose of providing direct or convenient pedestrian or transit travel now or in the foreseeable future (i.e., over the 20-year planning period) consider the objectives of this section, the Transportation Planning Rule and the planned land uses; and

(c) Direct, convenient access to transit is otherwise adequately provided for by other measures; or
(d) No substitute measures are available which adequately accomplish the purposes of this section and the excepted standard.
[Added Sec. 24, Ord. No. 7629, May 5, 1994.]

10.809 Vanpool and Carpool Preferential Parking Requirements

All new industrial, commercial and institutional development shall provide preferential parking for vanpools and carpools as follows:
(1) Number: Industrial, commercial, institutional and office developments shall designate at least 10% of the employee parking spaces for vanpool or carpool parking.
(2) Marking: The vanpool/carpool spaces shall be clearly marked "Reserved - Vanpool/Carpool Only".
(3) Location: Designated vanpool/carpool spaces shall be the closest employee parking spaces to the building entrance normally used by employees except for any disabled person spaces provided.
[Added, Sec. 25, Ord. No. 7629, May 5, 1994.]

10.810 Redevelopment of Existing Required Parking for Transit Oriented Uses

Any existing use subject to minimum off-street parking requirements and located within 400 feet of a transit route may reduce the number of required parking spaces subject to the following standards.
(a) Except for residential and group quarter uses, the number of off-street motor vehicle parking spaces provided for each use shall not exceed 120% of the minimum standard for the subject use in the TOD area.
(b) The parking minimums shall be reduced by 10% reduction in parking if:
(A) The pedestrian plaza is constructed adjacent to a transit route with transit service currently available, and is within ¼ mile of a major transit stop on that route. If there is a bus stop along the sites' frontage, the plaza must be adjacent to the bus stop,
(B) The pedestrian plaza is open to the public,
(C) The pedestrian plaza is at least 300 square feet exclusive of connecting walkways,
(D) A transit shelter (if required by the City and RVTD), landscaping, and trash receptacle, and
(E) The property owner provides a parking analysis demonstrating to the City's satisfaction that the vehicle parking demand for the existing or proposed use will be met with the reduction in place.
(2) Exemptions: The following uses are not eligible for these reductions: truck stops, building materials and lumber sales, nursery.
[Added, Sec. 26, Ord. No. 7629, May 5, 1994.]

10.811 Nursery Schools, Day or Child Care (Centers) Facilities

Nursery schools and day or child care center facilities shall provide and thereafter maintain outdoor play areas with a minimum area of 100 square feet per 1/3 the total licensed capacity of children. The Planning Director may approve a reduction of this requirement if the facility cares only for infants up to 6 months in age. In all districts, a fence of at least five (5) feet but not more than eight (8) feet in height shall be provided separating the outdoor play area from abutting lots.

Facilities licensed for 40 or more children shall be required to have a driveway designed for continuous forward flow of passenger vehicles for the purpose of loading and unloading children.

If a Conditional Use Permit is required and the following information, in addition to that normally required for a Conditional Use Permit, shall also be supplied:

(1) The maximum number of children the facility is proposed to be licensed to care for.
(2) Ages of the children to be cared for.
(3) List of any exceptions to the rules governing standards for day care facilities that the applicant will be applying for through the Children's Services Division.