DATE: December 12, 2007

TO: Oregon Transportation Commission

FROM: Matthew L. Garrett
Director

SUBJECT: Adoption of the South Medford Interchange Area Management Plan (IAMP) – Exit 27

Requested Action:

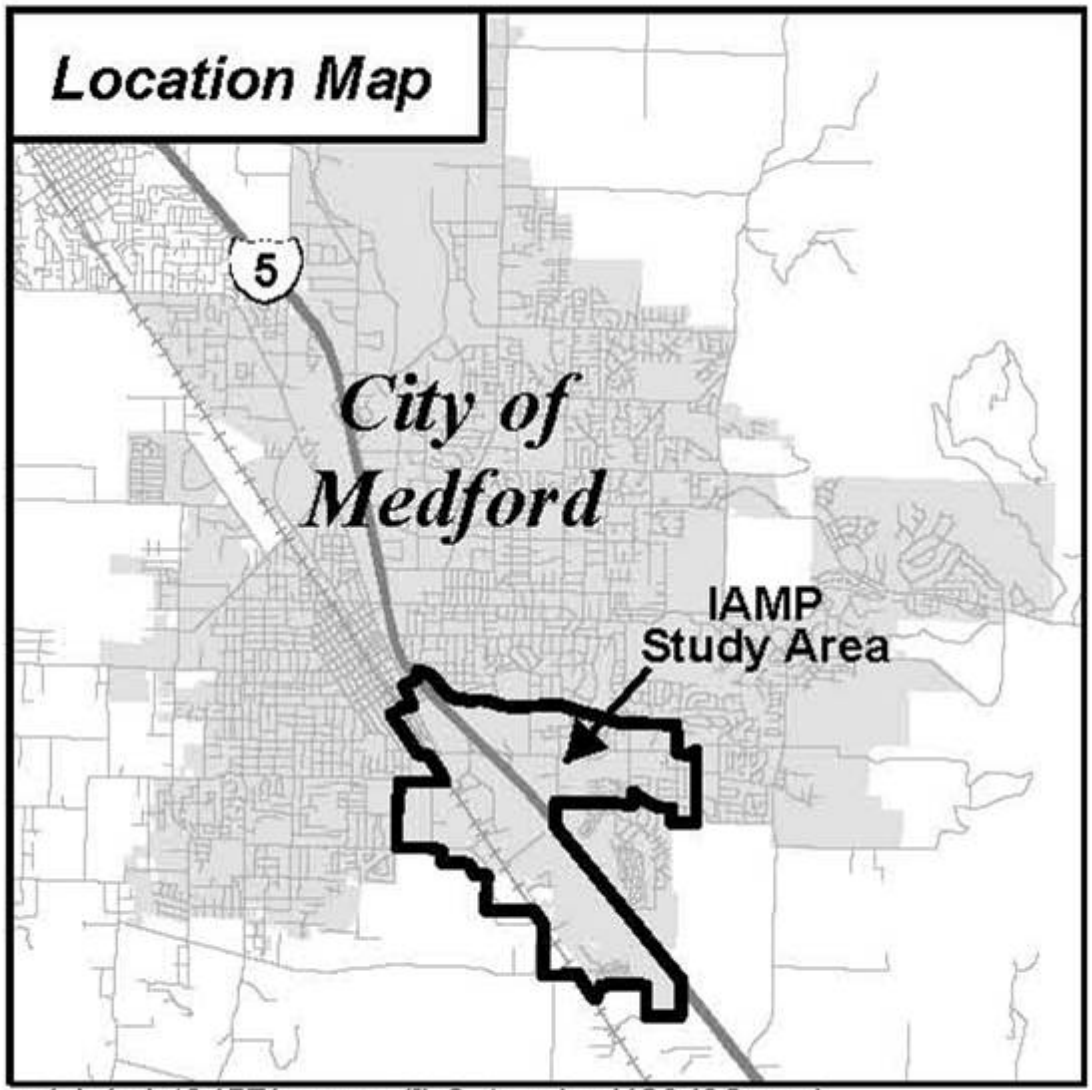
Adopt the South Medford Interchange (SMI) Area Management Plan (IAMP), which is Attachment C. Adoption of the SMI IAMP implements Policy 3C of the Oregon Highway Plan (OHP) and is consistent with the IAMP requirements of the Department's Access Management Rule (OAR 731-051-0155). Findings in support of this action are found in Attachment B, Findings.

Background:

The new South Medford single point urban interchange (SPUI) is under construction on Interstate 5, approximately one-half-mile south of the existing interchange at Barnett Road. Construction of the SPUI will replace the existing Barnett Road interchange. Existing on and off ramps will be removed but the Barnett Road overpass will remain as an east-west arterial.

The OTC approved Oregon Transportation Investment Act (OTIA) funding for the South Medford Interchange Reconstruction Project, which is listed in the 2006 to 2009 Statewide Transportation Improvement Program (STIP), with a condition that the South Medford IAMP be completed. The IAMP was prepared in coordination with the City of Medford, Jackson County, the Department of Land Conservation and Development (DLCD) and the Rogue Valley Metropolitan Planning Organization. The City of Medford has provided a letter dated October 22, 2007, affirming that the IAMP is consistent with the City's Transportation System Plan (TSP) and the Land Development Code, and supporting OTC adoption of the IAMP.

Attachments: Location and Air Photo/Study Area Maps
A: Staff report
B: Findings
C: South Medford IAMP
D: Letter from the City of Medford
E: Agency Comments & Department Response



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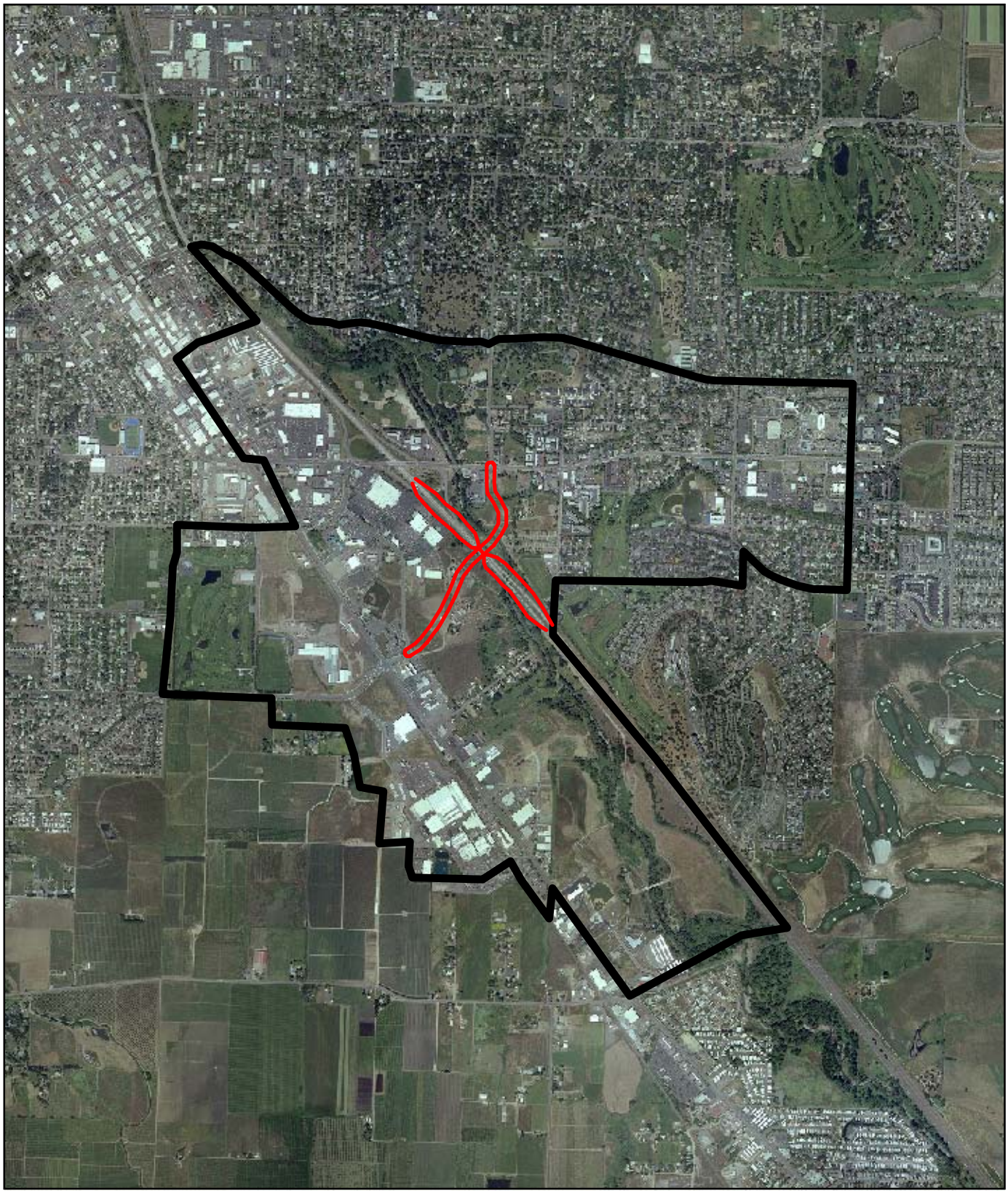

Figure 1a
South Medford Interchange Management Area

September 2007

South Medford Interchange

South Interchange Mgmt Area

0 1,000 2,000 4,000 Feet

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Interchange Area Management Plan
I-5, Interchange 27

Medford, Oregon

South Medford Interchange (27)
Interchange Area Management Plan

ODOT Region 3
3500 NW Stewart Parkway
Roseburg, Oregon

November 12 , 2007

LIST OF ACRONYMS

AMS	Access management strategy
ATMS	Advanced Transportation Management Strategies
DLCD	Department of Land Conservation and Development
EIS	Environmental Impact Statement
HDM	Highway Design Manual
I-5	Interstate 5
IAMP	Interchange Area Management Plan
ITS	Intelligent Transportation Systems
LDC	Land Development Code
LOS	Level of service
MPO	Metropolitan Planning Organization
OAR	Oregon Administrative Rule
ODOT	Oregon Department of Transportation
OHP	Oregon Highway Plan
OR	Oregon Route
OTIA	Oregon Transportation Investment Act
OTC	Oregon Transportation Commission
RTP	Regional Transportation Plan
RVCOG	Rogue Valley Council of Governments
RVMPO	Rogue Valley Metropolitan Planning Organization
RVTD	Rogue Valley Transportation District
SFR	Single-family residential
SMI	South Medford Interchange
SPUI	Single point urban interchange
TAC	Technical Advisory Committee
TAZ	Transportation Analysis Zone
TDM	Transportation Demand Management
TMA	Transportation Management Association
TOD	Transit oriented development
TPR	Transportation Planning Rule
TSM	Transportation System Management
TSP	Transportation System Plan
UGB	Urban growth boundary
v/c	volume to capacity

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APPENDICES

1 EXECUTIVE SUMMARY

An Interchange Area Management Plan (IAMP) is a planning document used to help protect both the function of the interchange over time and the investment in the facility. Oregon Administrative Rule 734-051-0155 requires the completion of an IAMP for new or substantially modified interchanges.

The new South Medford Interchange is under construction approximately one-half mile south of the existing Interstate-5 interchange at Barnett Road. The new interchange will result in reduced congestion with improved operation and safety over the existing interchange at Barnett Road. The Oregon Transportation Commission (OTC) placed a requirement in the 2006-2009 State Transportation Improvement Program (STIP), specifying that an IAMP and an Access Management Strategy (AMS) be developed for this new interchange. The OTC released construction funding prior to the completion of the IAMP, after ODOT and the City of Medford affirmed their collaborative work and resolve to complete the IAMP.

Completion of this new interchange is expected in 2009 and at completion the Barnett Road freeway ramps will be removed. The new Single Point Urban Interchange (SPUI) will function as an Urban Interchange and is intended to serve primarily regional traffic. However, it will also serve some local traffic movement between the north and south parts of Medford. The Oregon Highway Plan (OHP) establishes a mobility standard of 0.80 volume to capacity ratio (v/c) for interstate highways within metropolitan areas, which applies to the mainline of Interstate-5 through Medford. However Policy 1-F of the OHP clarifies that the SPUI's ramps shall have the smaller v/c value, between the OHP standard of 0.85 and the v/c of the SPUI's new crossroad (Highland-Garfield Connector). As the Highland-Garfield Connector is a new facility, it has not yet been assigned a Highway Classification. It is the recommendation of this IAMP that the Highland-Garfield Connector be classified as a Local Interest Road. The SPUI's ramps will have a mobility standard of 0.85.

Extensive planning and traffic analysis, including preparation of an Environmental Impact Statement (EIS) was undertaken prior to the design of the new interchange, and this IAMP does not propose or consider any redesign of the new interchange. Instead, the traffic analysis performed for the IAMP focused on making certain that the new interchange would have an operational life of at least twenty years. This analysis was based upon the population, employment and traffic volumes developed for the 2005-2030 Regional Transportation Plan (RTP). These RTP assumptions were based on uses permitted under the City of Medford's adopted comprehensive plan and Land Development Code (LDC). A traffic analysis using the regional traffic forecasting model demonstrated that the new SPUI would substantially meet Oregon Department of Transportation (ODOT) mobility standards in year 2030, with an overall v/c of 0.58.

The analysis in the IAMP also considered an Alternative Development Scenario developed to test what would happen if traffic generation exceeded RTP assumptions. This alternative used higher traffic generating employment values than the RTP and also added additional dwelling units in the study area. The traffic analysis from this alternative scenario also indicated the SPUI would meet ODOT mobility standards in year 2030, with a v/c of 0.70.

It is important to note that the traffic analysis for both the RTP assumptions and the Alternative Development Scenario was conducted using the same regional forecasting model that was used for the 2005-2030 RTP. This model is currently referred to as the "RVCOG" model. An updated model has recently become available and is being refined for use in the updated 2009-2034 RTP. These two models use different software and are each based upon a different TAZ structure for the study area. The "RVCOG" model was used for the South Medford IAMP because it was previously used for the EIS and therefore enabled the IAMP to be consistent with both the EIS and the current RTP.

The SPUI is calculated to meet ODOT mobility standards and provide for good traffic operations for more than twenty years. The design of the interchange itself, combined with the robust Access Management Strategy developed during the design phase, are given credit for the assurance that the facility will have more than sufficient capacity through the planning period. Regardless, this IAMP includes two management measures (numbered 2 and 3 below) intended to assure that this facility will meet OHP standards during and beyond the planning period. The IAMP recommends that the following three provisions be included in the adopted IAMP.

1) The Highland-Garfield Connector, a new state facility created by this project, shall be designated with an OHP Highway Classification of Local Interest Road with a mobility standard of 0.90.

2) ODOT shall continue to implement the Access Management Strategy – South Medford Interchange Project, 2003, which was developed during the design phase of this project.

3) The IAMP shall include provisions from Medford's Transportation System Plan (TSP) and Land Development Code that offer protection to the new interchange. Any amendments to these local provisions shall require a corresponding amendment to the IAMP. The specific policy and ordinance language to be included in the IAMP is as follows:

Medford TSP – Goals and Policies

Goal 2: To provide a comprehensive street system that serves the mobility and multi-modal transportation needs of the Medford planning area.

- **Policy 2-G:** The City of Medford shall undertake efforts to reduce per capita vehicle miles traveled (VMT) and single-occupancy vehicle (SOV) demand through TDM strategies.
- **Policy 2-M:** The City of Medford shall undertake efforts to contribute to a reduction in the regional per capita parking supply to promote the use of alternatives to the single occupancy motor vehicle.

Goal 8: To maximize the efficiency of Medford's transportation system through effective land use planning.

Policy 8-B: The City of Medford shall undertake efforts to increase the percentage of dwelling units and employment located in Medford's adopted TODs, consistent with the targeted benchmarks in the Alternative Measures of the RTP.

Medford Land Development Code

- **Section 10.146 Referral Agencies, Distribution:** Establishes the types of plan authorizations that the City notifies other agencies for review. This section requires the City Planning Department to notify ODOT regarding all major comprehensive plan amendments or amendments to the City's TSP. ODOT is also notified when other land use actions (including zone changes, Planned Unit Developments, land divisions and site plan reviews) occur in the proximity or adjacent to a state facility.
- **Section 10.227 Zone Change Criteria:** Requires applicants to demonstrate that Category A urban services or facilities are available, or can and will be provided for the subject property. Streets and street capacity must be provided by either i) streets that presently exist and have adequate capacity, ii) existing streets that will either be improved or new streets constructed to provide adequate capacity, by the time of building permit issuance, iii) for streets that must be constructed or improved, the Planning Commission may find that the street to be adequate if improvements are fully funded, iv) for streets that need to be improved, specific improvements must be identified and demonstrated to result in street adequacy.
- **Section 10.462 Maintenance of Level of Service D:** Whenever level of service is determined to be below level D for arterials or collectors, development is not permitted unless the developer makes the roadway or other improvements necessary to maintain level of service D respectively.

Significance of Local Policy and Ordinance Language in the IAMP

The inclusion in the IAMP of specific Medford TSP Policy language and Land Development Code provisions means that upon IAMP adoption, these local policies and ordinances cannot be amended unless a corresponding IAMP amendment occurs. To amend the IAMP, ODOT and Medford staff would be required to work together to craft amendment language that would be acceptable to both the State and the City. Any corresponding TSP or ordinance amendment at the City level could not be completed unless and until the OTC completed its review and adoption of the proposed IAMP amendment.

The cited TSP policies have been included because reducing VMT and reliance upon SOVs would have the effect of reducing traffic congestion, both on local streets and upon the new interchange. The policy requiring notification will assure that ODOT Development Review Planners and Engineers will continue to have the opportunity to collaborate with City of Medford staff in the review of traffic generation from proposed development, and in the implementation

of appropriate mitigation. ODOT involvement in the process will continue to protect the function of state facilities.

Medford's facility adequacy standard applies to all zone change requests. The requirement for a level of service D will also assure that the City's local street network will remain viable for use by local traffic. Assuring the facility adequacy of the local street system will have a positive impact upon the state system, because if local streets are developed and maintained to handle local traffic, less local traffic impact will occur to the state system

The South Medford IAMP finds that design of the SPUI, along with the Access Management Stategy, the related street improvements being implemented during construction of the facility and the presence of supportive City policy and ordinance language, combine to assure that the SPUI will function consistent with OHP standards through the planning period. The City of Medford has submitted a letter dated October 22, 2007 affirming that the IAMP is consistent with the City's TSP and supporting OTC adoption of the IAMP. This letter is attached to the IAMP as Appendix E and to the OTC packet as Attachment D.

2 IAMP Definition, Background, and Authority

2.1 Purpose of IAMPs Generally

An Interchange Area Management Plan (IAMP) is a planning document used to help protect the function of the interchange over time and consequently the state's investment in the facility. New interchanges are very costly and it is in the interest of the state, local governments and citizens to ensure that the interchange functions as it was designed, for as many years as possible. The Oregon Administrative Rules (OAR) address IAMPs, with OAR 734-051-0155 establishing a requirement for IAMPs for new or substantially modified interchanges. In addition, Oregon Highway Plan (OHP) policies direct the Oregon Department of Transportation (ODOT) to plan and manage interchange areas for safe and efficient operation.

An IAMP is intended to evaluate existing conditions, assess limitations, identify long-range needs, and recommend potential management actions to protect the function of the interchange.

2.2 Purpose of the South Medford Interchange IAMP

The IAMP for the South Medford Interchange (SMI) addresses the new Interstate-5 (I-5) Single Point Urban Interchange (SPUI) that will be located approximately one-half mile south of the existing interchange at Barnett Road. The SPUI will replace the existing Barnett Road interchange, but Barnett Road will remain as a freeway overpass. The IAMP has been developed specifically to address the long-range issues related to the new interchange and does not address issues related to the current Barnett Road Interchange.

This IAMP is required by OAR 734-051-0155 and also by the Oregon Transportation Commission (OTC) as a condition for the use of Oregon Transportation Investment Act (OTIA) funds for the construction of the new interchange. This condition, which was placed in the 2006-2009 State Transportation Improvement Program (STIP), specified that ODOT develop an IAMP and an Access Management Strategy (AMS) in accordance with OAR and OHP provisions. The OTC also required that the City of Medford indicate acceptance of the IAMP and AMS by adoption. Recent Administrative Rule changes now allow jurisdictions to indicate acceptance of an IAMP by affirming that the IAMP is consistent with the local transportation system plan (TSP) The City of Medford has provided a letter dated October 22, 2007, affirming this consistency.

As the AMS is a strategy rather than a plan, it is not subject to adoption. Instead, the City has indicated acceptance of the AMS. The implementation of the AMS, which is occurring with the construction of the new interchange, is one of two management measures that this IAMP finds will protect the function of the Interchange through the 20-year planning period. The AMS is further discussed in Section 8 and the specific elements of interchange protection are identified. Local policy support for access management is also demonstrated in Appendix A.

During the planning for the current interchange reconstruction project, Intergovernmental Agreements between ODOT and the City of Medford were signed in September of 2003 and December of 2005, to transfer state facilities that operate as local streets to the jurisdiction of the City. The Final Environmental Impact Statement (EIS) for the project was completed in February

of 2004. The AMS has been completed and is being implemented with the construction of the SMI.

2.3 Interchange Function

The existing SMI is an urban interchange that serves the entire southern part of the City and connects I-5 with the city's commercial core and Oregon Route (OR) 99. This existing interchange utilizes ramps that connect I-5 to Barnett Road. A new South Medford Interchange is currently under construction approximately one-half mile south of the Barnett Road interchange. This new interchange, being constructed from 2006 to 2009, will be a Single Point Urban Interchange (SPUI). This new facility will utilize Garfield Street and Highland Drive, instead of Barnett Road, as its connection with the arterial street system. Upon completion of the new interchange, the I-5 ramps at the existing Barnett Road interchange will be removed, but Barnett Road will remain as an overpass and will function as a primary east-west arterial.

The new SPUI will function as an Urban Interchange and is intended to serve primarily regional traffic. However, it will also serve some local traffic movement between the north and south parts of Medford. The OHP establishes a mobility standard of 0.80 volume to capacity for interstate highways within MPO areas, which applies to the mainline of Interstate-5. However Policy 1-F of the OHP clarifies that the SPUI's ramps shall have the smaller v/c value, between 0.85 and the v/c of the SPUI's new crossroad (Highland-Garfield Connector). As the Highland-Garfield Connector is a new facility, it has not yet been assigned a Highway Classification. It is the recommendation of this IAMP that the Highland-Garfield Connector be classified as a Local Interest Road, with a v/c of 0.90. Therefore, pursuant to OHP Policy 1-F, the SPUI's ramps will have a mobility standard of the smaller value, or 0.85.

2.4 Interchange Reconstruction Project

Reconstruction of the SMI was a concept developed several years ago and considerable planning was undertaken prior to the reconstruction project that began in 2006. The project was included in the Rogue Valley Metropolitan Planning Organization (RVMPO) Regional Transportation Plan (RTP) and the City of Medford's TSP.

An EIS was prepared assessing the impacts of the project on the surrounding area. The Draft EIS was completed in September 2001 and the Final EIS was completed in February 2004.

The OTC approved funding for the interchange reconstruction project as part of the Statewide Transportation Improvement Program. The OTC found that the interchange reconstruction project is consistent with the City of Medford Comprehensive Plan, the RVMPO RTP, and Policy 1G of the OHP. The conditions of approval required that the IAMP "…will provide for the protection of safe and efficient operation of the interchange between connecting roadways and will minimize the need for major improvements to existing interchanges."

The interchange project is intended to reduce congestion while improving both the function and safety of the interchange. In addition, completion of the new interchange will enable related improvements to the City's street system such as new limited-access local streets, connecting the interchange with Oregon Route (OR) 99 and improvements to Barnett Road.

Key features of the interchange reconstruction project include the removal of existing on and off ramps at Barnett Road and the construction of new ramps connecting to a new overpass about one-half mile to the south. Barnett Road will remain as as an overpass and major east-west

arterial. The new SPUI will direct most turning movements to occur at a signalized intersection located on the interchange structure extending over I-5. A SPUI also tends to minimize the amount of right-of-way required for on and off- ramps, an important consideration in the environmentally and developmentally constrained areas associated with Bear Creek. The project will include travel lanes, turn lanes, bike lanes, sidewalks, landscaped areas and other roadway-related facilities.

ODOT completed an access management strategy (AMS) during the design phase of the reconstruction project, which changes some of the property access in the vicinity of the interchange. The City of Medford staff reviewed the AMS for possible impact on streets under the city's jurisdiction. The IAMP does not feature any re-design of the new interchange or any changes to the AMS.

2.5 Problem Statement

This IAMP focuses on the SPUI, which is the central element of the new interchange project. The problem to be addressed in the IAMP for the new SMI is to assess whether, in light of recent development activity and new estimates of future development in the south Medford area, the SPUI can still be shown to have an operational life of at least 20 years. Testing to confirm that the SPUI meets mobility standards specified in the OHP for at least the next twenty years helps to assure that the substantial investment being made for the interchange project by ODOT and local partners is protected. The construction of the new SPUI will greatly improve the function of Barnett Road as an east/west arterial and also make possible related bike and pedestrian improvements.

The analysis undertaken for this IAMP represents an update of the analyses performed for the EIS. Since the traffic analysis was undertaken for the EIS, new information was compiled for population variables (number of households and population) and for employment (number of employees by employment category). The population and employment information was updated as part of an effort to use the most recent data for the 2005-2030 RTP. The newer base year population and employment data is from year 2002. The future year used for the IAMP is 2030, making it consistent with the RTP.

The analysis conducted for the IAMP makes use of the new population and employment data by using information developed by the staff of the RVMPO in cooperation with local agencies. This data is used in the regional transportation forecasting model run by ODOT's Transportation Planning and Analysis Unit (TPAU). The model, including the base year and future year data, is the same as that used to analyze transportation needs, traffic operations, and the air quality analysis conducted for the 2005-2030 RTP.

In conducting the transportation analysis for the IAMP, 2004 traffic counts provided by the City of Medford were also used as the basis for the assessment of traffic operations. These data were several years newer than the base volumes used in the EIS and account for much of the recent development that occurred in the interchange area since the late 1990's.

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2.6 Goals and Objectives

The goals and objectives to guide the development of this IAMP were based upon the OTC's conditions of approval specified in the 2006-2009 State Transportation Improvement Plan

(STIP). The STIP is the document used by the OTC to make funding decisions and commitments for projects.

Goal
Maintain the function of the interchange over the 20-year planning period to preserve the investment in the facility.

Objectives
Assess the traffic operations at the SPUI using the most recent available data and most recent forecasts of year 2030 traffic, to determine whether the mobility standards prescribed in the OHP will be met for at least 20 years.

Manage access, including devising an access management strategy in compliance with applicable OAR 734 Division 51.

Goal
Minimize the need for future major improvements to the interchange.

Objectives
Identify whether future land uses might be inconsistent with the operation and safety of the new interchange and, if such land uses were identified, develop and recommend strategies for land use controls.

Ensure ODOT is involved in future land use decisions that could affect the function of the interchange.

2.7 Study Area

The study area selected for this IAMP includes all of the road segments that were considered in the design of the new interchange plus an area where traffic was predicted to have a substantial impact on the interchange. The study area centers on the new interchange and includes parcels along I-5, OR 99, and Barnett Road (See Figure 1 on page 12).

The boundaries of the study area are Siskiyou Boulevard on the north, the city limits/urban growth boundary (UGB) on the south, Olympic Avenue/Murphy Road on the east, and the UGB and South Holly Street on the west. This area excludes the downtown, but still encompasses a substantial portion of the commercial, industrial, and multi-family residential (MFR) land in south-central Medford.

The IAMP study area boundary matches the transportation analysis zone (TAZ) boundaries used in the same version of the regional traffic forecasting model that was used for the adopted RTP and for the Environmental Impact Statement for the South Medford Interchange design project. The study area accounts for more than ten percent of the region's total employment and about two percent of the region's households. Further discussion about growth and development potential within the study area is contained in Section 3.3.

2.8 Public and Agency participation

This IAMP has been prepared with participation from the City of Medford, ODOT and with input from a variety of stakeholders and the general public.

A public meeting was held on May 25, 2005 in the Medford City Hall, to introduce the concept of the IAMP and to enable public comment. Several informational presentations were made before City of Medford committees. The first presentation occurred on November 11, 2004 before the Medford City Council and the second was held on January 25, 2006 with the Joint Transportation Subcommittee. In addition, three study sessions were held. On February 26, 2007, a joint study session was held with the Medford Planning Commission and the Joint Transportation Subcommittee. Study sessions to present the final draft of the IAMP were held with the City Council on September 13, 2007 and with the Planning Commission on September 24, 2007. The agendas for all of these meetings were placed on the City's website prior to the meeting time, and meetings were open for public attendance. The IAMP was also placed on the City's website to enable a wider public review.

The IAMP Technical Advisory Committee (TAC) for the project, which included representatives of the City, ODOT, Department of Land Conservation and Development (DLCD), the Rogue Valley Metropolitan Planning Organization (RVMPO) and Jackson County, met seven times throughout the plan development period.

3 Existing Conditions Analysis

3.1 Consistency with Plans and Regulatory Framework

Adopted transportation plans and land use plans were reviewed to assess the relationship between the SMI reconstruction project and the IAMP. The purpose of this review was to help ensure consistency with applicable plans and regulations so that the IAMP would meet state and community goals for the area, and to identify how local planning efforts, policies, and regulations would protect the interchange. Two key planning documents that specifically reference the SMI are the RTP and the City of Medford's TSP. Appendix A of the IAMP goes into detail to identify specific local plan and ordinance language that supports the protection of the function of the Interchange. Attachment B of the OTC Packet presents findings of consistency with the relevant transportation and land use plans and policies, and further identifies how they influence planning for the SMI.

3.1.1 Regional Transportation Plan (RTP)

The RVMPO RTP includes a street system project list that specifically identifies construction of the new SMI as a short-range project (project number 900 in RTP Figure 8-3). Short-range projects are expected to be needed within five years of plan adoption. The RTP lists ODOT and the City of Medford as the sources of funding for the SMI project.

Three RTP policies require consistency and coordination:

> **Policy 7-4**. The Rogue Valley Regional Transportation Plan shall be consistent with the adopted elements of the Oregon Transportation Plan.
>
> **Policy 7-5**. Local transportation plans will be consistent with those developed at the regional and state level.
>
> **Policy 7-6**. Local governments shall coordinate transportation planning and construction efforts with those of the RVMPO.

3.1.2 Medford Transportation System Plan (TSP)

The City TSP Implementation Measure 1-B(5) "[a]dopt[s] the Regional Transportation Plan (RTP) by reference in the Medford Comprehensive Plan to the extent that this Plan is consistent with the Medford Transportation System Plan." The City of Medford's TSP also specifically includes the SMI project. The TSP identifies it as an ODOT Tier 1 short-range (2004-2008) improvement (project number 3, TSP Table 13-2). In Chapter 5 (Street Plan), the section on operations and capacity deficiencies on state highways discusses the SMI and the IAMP. It reiterates the OTC OTIA funding conditions of approval, including the specification that the City adopt the IAMP and Access Management Strategy. However, recent Administrative Rule changes have amended the requirement for adoption to instead require affirmation that the IAMP is consistent with the City's TSP. To meet this requirement, the City of Medford has submitted a letter dated October 22, 2007 that affirms that the IAMP is consistent with the City's TSP. The Access Management Strategy for the Interchange will also not be subject to adoption, as it is a strategy rather than a plan. Implementation of this strategy is currently occurring with construction of the project.

3.1.3 Land Use Notification and Coordination with ODOT

The Medford LDC 10.146, Referral Agencies, Distribution, establishes the types of authorizations that the City notifies other agencies for review. The Medford Planning Department notifies ODOT of all major comprehensive plan amendments, which are legislative actions initiated by the planning commission or city council for an amendment that affects a large area, or adoption of new elements of the comprehensive plan, TSP, or sub-area plan. The planning department notifies ODOT of the following types of proposals within or abutting ODOT's jurisdiction:

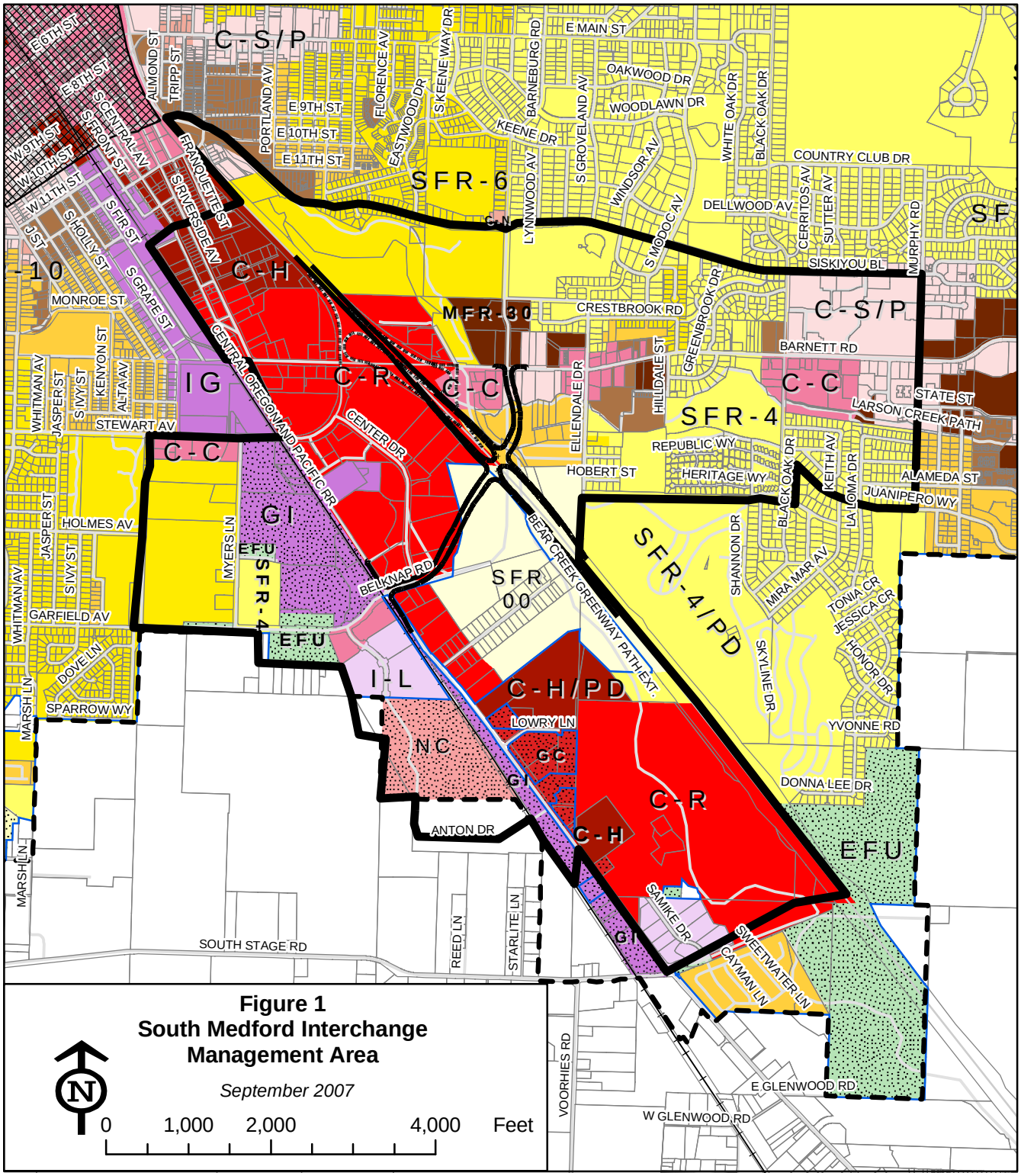
- Minor comprehensive plan amendment—this is a quasi-judicial decision affecting individual properties
- Annexation (except for land that is surrounded by City land, then no notice is given)
- Zone change
- Planned unit development,
- Land division
- Site plan and architectural review
- Transportation facility development

For conditional use permits, the City notifies ODOT if the proposal includes new buildings or building additions that take access from a state facility. The planning department does not routinely notify ODOT of LDC amendments, street vacations, or requests for a departure from the literal requirements of the code (exception). However, LDC 10.146 allows the Planning Director to exercise discretion and send requests for review to agencies for proposals not listed. In addition, the Transportation Planning Rule (TPR) (OAR 660-012-0060 Plan and Land Use Regulation Amendments) requires the City of Medford to coordinate with ODOT in making the determination regarding whether a plan amendment or regulation would significantly affect I-5 or the SMI. OAR Section 660—012-045(2)(f) also includes regulations directing local governments to notice public agencies including MPOs and ODOT regarding land use applications that require public hearings, for subdivisions, for road approaches and for applications that affect airport operations.

ODOT coordinated with the City of Medford throughout the IAMP planning process. The City of Medford provided input on the population and employment data used in the regional transportation forecasting model used for the IAMP traffic analysis. Representatives from the City served on the IAMP TAC, along with representatives of the RVMPO, DLCD and Jackson County. During the IAMP preparation process, the TAC provided a forum for the discussion of land use and transportation issues. Based on the traffic operations analysis, the TAC concluded that no land use actions were needed to protect the function of the interchange for the 20-year planning period.

3.2 Existing Land Use and Zoning

Figure 1 shows existing zoning designations. The study area contains a mix of residential, commercial, industrial lands and open space. Figure 1a shows the study area superimposed over an air photo taken in 2007. From comparing Figures 1 and 1a, it can be determined that there was vacant land within the study area as recently as 2007.



Legend

- South Interchange Management Area
- UGB
- City Limits
- Taxlots
- Downtown Medford TOD
- New SPUI and Garfield Avenue-Highland Drive Connector
- Ramps Removed as part of Interchange Project

Zoning

City Residential

- Multi-Family Residential - 30 Units/Acre (MFR-30)
- Multi Family Residential - 20 Units/Acre (MFR-20)
- Multi-Family Residential - 15 Units/Acre (MFR-15)
- Single Family Residence - 10 Units/Acre (SFR-10)
- Single Family Residence - 6 Units/Acre (SFR-6)
- Single Family Residence - 4 Units/Acre (SFR-4)
- Single Family Residence - 2 Units/Acre (SFR-2)
- Single Family Residence - 1 Unit/Acre (SFR-00)

City Commercial

- Heavy (C-H)
- Regional (C-R)
- Community (C-C)
- Neighborhood (C-N)
- Service/Professional (C-S/P)

City Industrial

- Heavy (I-H)
- General (I-G)
- Light (I-L)

County Residential

- Suburban - 1 Acre Minimum (SR-1)
- Suburban - 2.5 Acre Minimum (SR-2.5)
- Rural - 5 Acre Minimum (RR-5)
- Farm - 5 Acre Minimum (F-5)

County Resource

- Exclusive Farm Use (EFU)
- Open Space Reserve (OSR)

County Commercial

- General (GC)
- Neighborhood (NC)

County Industrial

- General (GI)
- Light (LI)
- WHITE Unknown/Missing

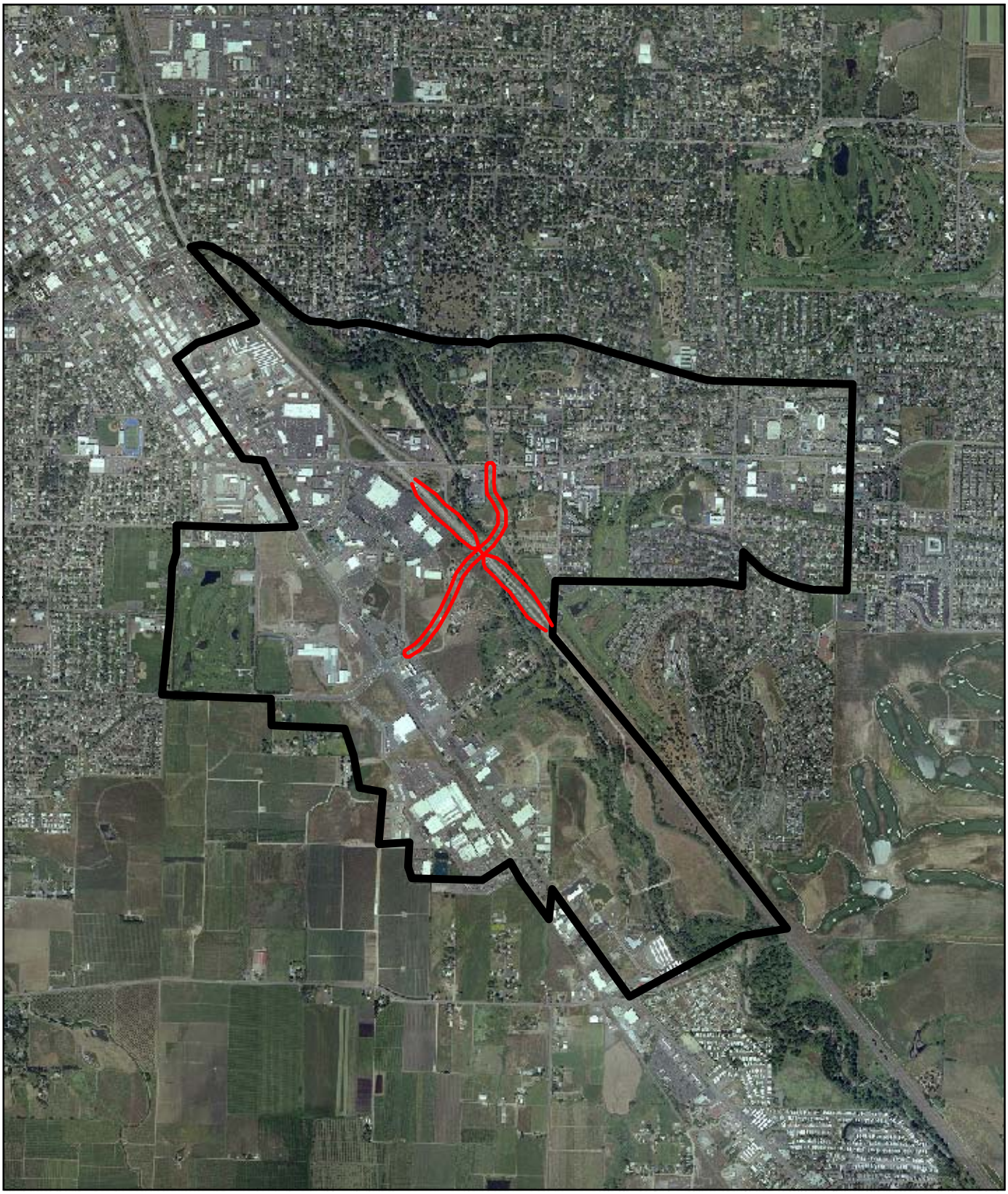


Figure 1a
South Medford Interchange Management Area

September 2007

Information used for the RTP, including base year population and employment data from 2002, was used to assess existing conditions. Year 2002 was also the most recent year for which data was available for both population and employment when this study began.

The study area contains approximately 1,000 residences and a significant amount of single-family residential (SFR) development can be found in the planning area east of I-5. Though much of the residential land is developed, some vacant residential land remains in the east side of the study area, to the south of the new interchange and west of Myers Lane.

Employment comprises an important component of land uses within the study area, accounting for over 9000 employees. Service and retail sector employment accounts for about 85 percent of the employment in the IAMP planning area and includes big box retail, specialty retail and fast food restaurants, many of which are found along the Barnett Road and OR 99 corridors. There is currently some vacant and under-utilized commercially zoned land in the vicinity of Center Drive and OR 99. There is also an undeveloped area in the south part of the study area, between Interstate 5 and OR 99, that is designated as Regional Commercial. A portion of this area is being developed as a Regional Sports Park.

The Rogue Valley Medical Center and nearby medical services, concentrated along Barnett Road between Murphy Road and Black Oak Drive, fall into the service sector employment category. The medical center and nearby facilities serve the entire region and have high volumes of traffic throughout the day.

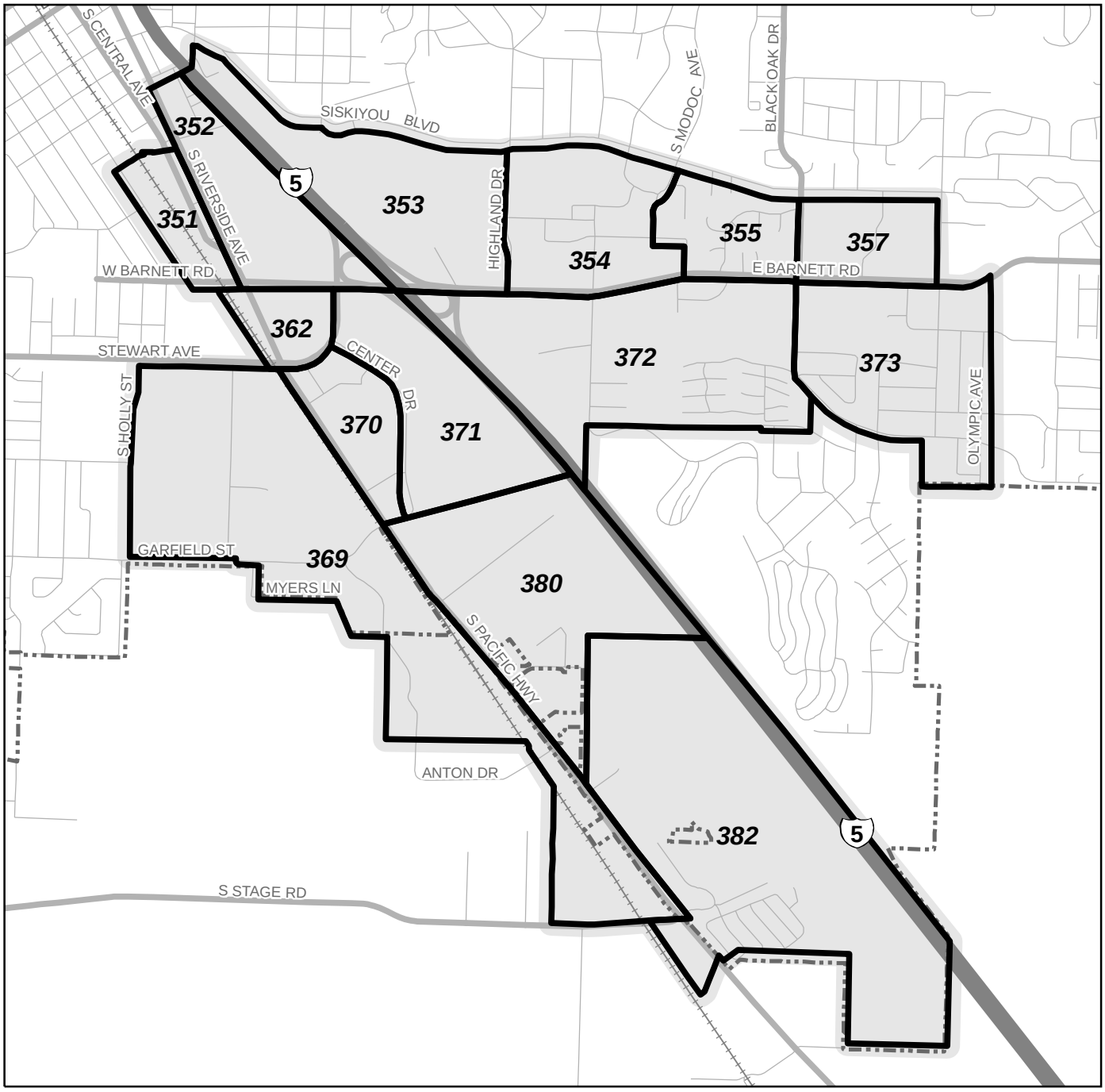
Industrial employment accounts for about ten percent of the employment in the IAMP planning area. Industrial development can also be found along the OR 99 corridor. This area also features some vacant or under-utilized land with industrial zoning designations, with most of the vacant industrial land located on the west side of OR 99. More industrial development along this corridor can be expected. Industrial employment has less intense trip generation characteristics than retail, service or residential.

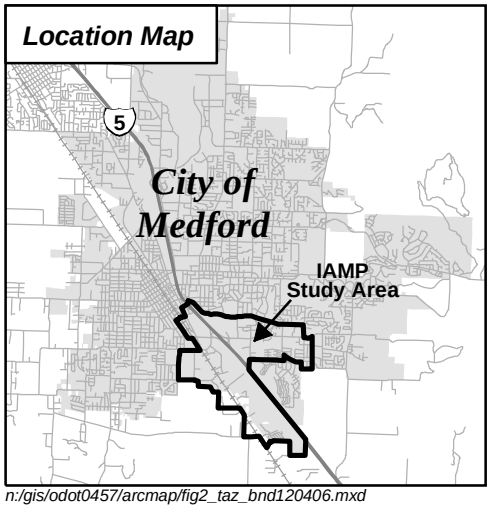
According to the forecasts of households and population used in the RTP, a total of about 400 new households are assumed to be developed within the entire study area by 2030. Employment forecasts for the RTP predict that the study area will add about 1500 employees by year 2030 for a total of approximately 10,600 employees in the study area. More detailed information on the future employment predicted for the study area can be found in Section 5.1.

3.3 Existing Population, Households and Employment

TAZs are the basic geographic building blocks used to represent population, household and employment information used in regional traffic forecasting models. The TAZs used in the regional traffic forecasting model in the south part of Medford are illustrated in Figure 2.

Table 1 summarizes the key population, household and employment data for the study area with information presented by TAZ and by employment category. The data in Table 1 are estimates for year 2002, the latest year for which both population and employment estimates were available at the beginning of this study. Employment is broken down to sub-categories of retail, service, industrial or other.





n:/gis/odot0457/arcmap/fig2_taz_bnd120406.mxd

Figure 2

South Medford Interchange IAMP Study Area and TAZ Boundaries

Legend

- Transportation Analysis Zones (TAZ)
- South Medford Interchange Area Management Plan (IAMP) Study Area
- Medford City Limits
- Interstate
- Major Roads
- Local Streets
- Railroads

N

0 0.25 0.5

Miles

Table 1. IAMP Planning Area Household and Employment Data by TAZ, Year 2002

			Employment by Category				
TAZ	**Population**	**Households**	**Retail**	**Service**	**Industrial**	**Other**	**Total**
351	119	43	30	188	48	298	564
352	188	64	208	308	53	34	603
353	145	63	18	59	3	10	90
354	250	108	1	61	5	3	70
355	345	124	0	116	6	1	123
357	39	15	1	2,153	0	6	2,160
362	45	16	88	176	67	43	374
369	132	50	1,747	622	318	143	2,830
370	27	12	26	88	3	129	246
371	34	15	181	404	23	8	616
372	478	223	24	191	2	101	318
373	526	197	33	384	0	137	554
380	143	66	123	176	201	4	504
382	92	39	29	0	15	24	68
Total	2,563	1,035	2,509	4,926	744	941	9,120

Table 2 summarizes the same key population, household and employment data listed in Table 1, except that it includes the estimates for year 2010. This is the year when the new SPUI is expected to be operational.

Table 2. IAMP Planning Area Household and Employment Data by TAZ, Year 2010

			Employment by Category				
TAZ	**Population**	**Households**	**Retail**	**Service**	**Industrial**	**Other**	**Total**
351	119	43	30	201	50	260	541
352	188	64	211	356	55	1	623
353	146	63	18	67	3	0	88
354	265	115	6	68	5	0	79
355	352	127	0	118	6	0	124
357	39	15	1	2,173	0	5	2,179
362	45	16	90	218	69	7	384
369	183	68	1,764	650	395	136	2,945
370	27	12	79	269	3	6	357
371	36	16	183	438	24	0	645
372	505	239	24	242	2	55	323
373	640	254	40	428	0	107	575
380	180	84	131	218	207	0	556
382	89	39	36	44	28	5	113
Total	2,814	1,155	2,613	5,490	847	582	9,532

Year 2010 traffic volumes were forecast using the household and employment data from Table 2 and similar year 2010 data for the remainder of the RVMPO area. The results of the year 2010 traffic analyses are discussed in Section 4.

4 Transportation Facilities and Traffic Operations – Year 2010

4.1 Key Transportation Facilities

For purposes of traffic analysis, this IAMP assumes that the new interchange is in place and street improvements associated with the interchange project have been constructed. The interchange is expected to be fully operational in 2010.

The central feature of the new interchange is the new SPUI. Unlike more conventional interchange configurations where each ramp has a separate intersection with the cross street, a SPUI has a single point where traffic from both northbound and southbound ramps intersect with the cross street. The new Highland-Garfield Connector, an arterial street being constructed as part of the interchange project, is the cross street connection.

The Highland Drive – Garfield Avenue Connector will extend from Barnett Road to OR 99. Beginning at Barnett Road, the new arterial street will serve as the south leg of the signalized intersection of Barnett Road and Highland Drive. From this intersection, the Highland-Garfield Connector will extend south to the new SPUI where it will provide full directional access to I-5. From the SPUI, the Highland-Garfield Connector will continue southwest to connect with OR 99 at its signalized intersection. A raised median will run from OR 99 to Barnett Road with openings at the signalized Center Drive intersection and the on- and off-ramps for the I-5 SPUI. The arterial will provide two travel lanes in each direction with sidewalks and bike lanes on both sides. At the I-5 SPUI, dual left-turn lanes will be provided for access to the north- and southbound I-5 on-ramps. Dual left-turn lanes will also be provided at the intersection of the arterial with OR 99.

As described in Section 2, the focus of this IAMP is to ensure that traffic operations of the SPUI meet ODOT's mobility standards for a period of at least twenty years. Assessing the long-range operational standards and planning for other system changes for the remainder of the region's transportation system are most appropriately performed in the context of the RTP and the City's TSP.

Figure 3 shows configuration of the interchange including the SPUI.

4.2 Traffic Operations Standards

Transportation engineers have established various descriptors of traffic operations at intersections. The two principal measures to assess how well an intersection is operating are the volume-to-capacity (v/c) ratio and the Level of Service (LOS).

ODOT's mobility standard is presented as a volume-to-capacity (v/c) ratio. A v/c ratio of less than 1.0 indicates that the volume is less than capacity. When it is closer to 0.0, traffic conditions are generally good with little congestion and low delays for most intersection movements. As the v/c ratio approaches 1.0, traffic becomes more congested with unstable flow and longer delays.

ODOT applies two sets of operational standards (mobility standards) to different types of projects. For planning and for the analysis of existing conditions and no-build conditions the applicable mobility standards are found in Table 6 of the OHP. For analysis of build alternatives, the applicable mobility standards are specified in Table 10-1 of the 2003 Highway Design

Single Point Urban Interchange Configuration for SMI

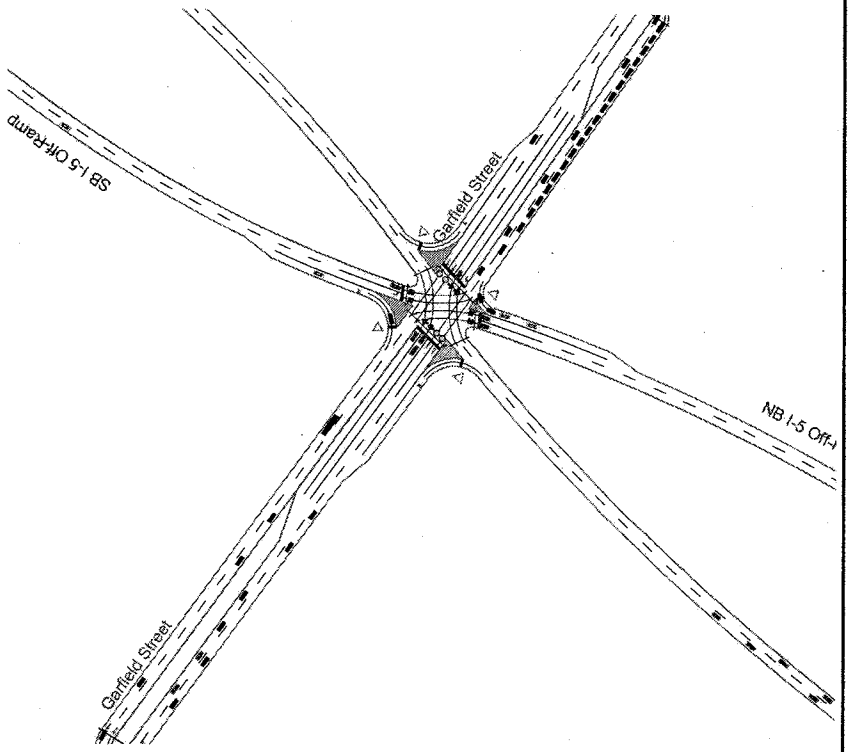


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FIGURE 3

SPUI Configuration

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Manual (HDM). Mobility standards are dependent on the roadway classification and area type, and apply during peak operating conditions through the planning horizon year of 2030. According to the OHP, the standard for freeway ramp terminals is a v/c of 0.85, unless pursuant to OHP Policy 1-F, the crossroad has a v/c that is lower than 0.85.

Another standard for measuring the quality of service of roadways at intersections is LOS. At both stop-controlled and signalized intersections, LOS is a function of control delay. Control delay consists of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Six standards have been established ranging from LOS A, where there is little or no delay, to LOS F, where delay exceeds 80 seconds at signalized intersections.

It should be noted that delays can be long for some movements at a stop-controlled intersection even when the v/c ratio indicates that there is adequate capacity to process the demand for that movement. Similarly at signalized intersections, some movements may have relatively low v/c ratios, but still experience long delays. Such conditions often occur on side street approaches or left turns onto side streets where motorists may experience longer delays because they receive only a small portion of the green time during a signal cycle. Though ODOT uses the v/c ratio exclusively, it is sometimes informative to examine both v/c ratio and LOS when evaluating overall intersection operations. Both measures are presented in the tables summarizing traffic operations in this document.

4.3 Projected Year 2010 Traffic Volumes

The year 2010 traffic volumes were developed from household, population, and employment data in the RVMPO RTP and land use models.

As stated above, the new interchange is predicted to be fully operational in year 2010. Due to the reconfiguration of the interchange, traffic patterns in the area will be considerably altered by the new interchange.

One of the priorities of this IAMP was to update the traffic operations analysis performed for the EIS. Updating the operations analysis for the SPUI required estimating the year 2010 traffic volumes. Projected year 2010 traffic volumes were developed by analyzing the actual traffic counts in the area from 2004, provided by City of Medford staff, and results of the runs of the regional model for the base year and year 2010. The regional model was also used to determine travel patterns of traffic using the new northbound and southbound ramps. The projected year 2010 volumes using this information are presented in Figure 4. Further explanation of the methodology for projecting year 2010 volumes is found in Appendix B.

4.4 Predicted Year 2010 Traffic Operations

The traffic operations for the SPUI were analyzed using the Synchro and SimTraffic analysis packages. These analysis tools are based on the Highway Capacity Manual. Unlike the regional model, which reports traffic volumes, the traffic operations analysis packages such as Synchro and SimTraffic show the v/c ratios, delay, and queues at intersections. Most traffic operations analysis software packages including Synchro have undergone considerable refinement and have proven to be quite effective for analysis of typical four-leg intersections, including those with very complex signal timing.

2010 Volumes for IAMP from Regional Forecasting Model

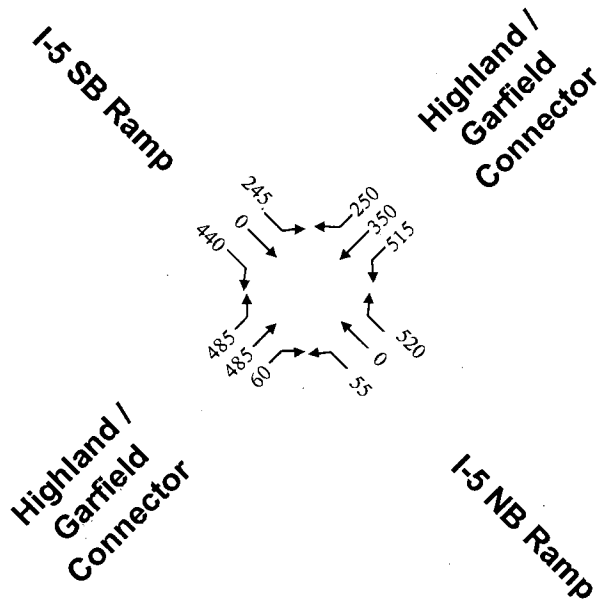

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FIGURE 4

2010 PM Peak Hour Traffic Volumes

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A SPUI is an unusual configuration and at least two variations have been used to model the operational results at such intersections. At a SPUI, all four left-turn movements (from both exit ramps and from the cross street to both entrance ramps) and the through movements on the cross street all go through the central signalized portion of the intersection. The right turns from the two exit ramps are not subject to the traffic signal, but are simply required to yield where they make right turns onto the cross street.

One variation used to model a SPUI using Synchro simulates the SPUI using a signalized, central intersection flanked by two unsignalized intersections. The central intersection accounts for all the movements except for the right turns from the ramps to the cross street. Each of the flanking "intersections" represents the portion of each off-ramp where right turns are made to the cross street. This variation was used to simulate the SPUI in the original traffic analysis in the EIS. One of the concerns about using this variation to simulate a SPUI is that this variation does not accurately account for the periods of each signal cycle when motorists making right turns from the ramps have no interfering traffic on the cross street. This occurs when traffic is turning left from the cross street onto the on-ramps, a major movement at the SPUI. The SimTraffic runs performed using this variation to model the SPUI did show good operations with little delay on the ramps even though a high v/c ratio was reported.

Staff from Trafficware, the developers of Synchro and SimTraffic, provided the consulting staff of David Evans and Associates with a different variation for modeling and simulating a SPUI that had been used successfully elsewhere. This variation was used for testing of the SMI SPUI for year 2010 and for year 2030. The Synchro outputs of these tests are included in Appendix C.

Table 3 presents the summary of the year 2010 results for the PM peak hour using the SPUI modeling configuration adapted from the version provided by Trafficware staff. The traffic operations analysis showed that the SPUI would meet the OHP's mobility standard, with an overall v/c of 0.47.

Table 3. Traffic Operations Analysis Summary – Year 2010

SPUI		Calculated V/C Ratio	ODOT V/C Standard	Calculated LOS
Overall		0.47	0.85	B
I-5 Southbound Off-Ramp	LT	0.71	na	C
	RT	0.31	na	A
I-5 Northbound Off-Ramp	LT	0.16	na	C
	RT	0.37	na	A
Garfield Northeast-bound	LT	0.78	na	C
	Thru	0.46	na	B
	RT	0.04	na	A
Highland Southwest-bound	LT	0.80	na	C
	Thru	0.32	na	B
	RT	0.18	na	A

In addition to calculating the v/c ratio for the intersection as a whole and for each approach, an analysis was also conducted of the queuing that occurs at the SPUI. The queuing at the SPUI is reported in Table 4. The results of this analysis were checked with the results from Final EIS and were found to be comparable.

Table 4. Queuing Summary – Year 2010

SPUI	Movement	Calculated 95th Percentile Queue	Storage Distance
Southbound Off-Ramp	LT	125	Na
	RT	75	200
Northbound Off-Ramp	LT	50	Na
	RT	125	200
Garfield Northeast-bound	LT	175	300
	Thru	175	Na
	RT	50	200
Highland Southwest-bound	LT	200	300
	Thru	125	Na
	RT	50	200

5 Future Land Use and Traffic Operations – Year 2030

5.1 Forecast Year 2030 Population, Households and Employment

As described in Section 3.3, some vacant land is available in the study area for new households and for a variety of employment growth. All assumptions about population, household and employment growth are the same as used in the 2005-2030 RTP.

Table 5 summarizes the same key population, household and employment data listed in Tables 1 and 2, except that it includes the estimates through the planning period to year 2030, which is twenty years beyond the year when the new SPUI is expected to be operational.

Table 5. IAMP Planning Area Household and Employment Data by TAZ, Year 2030 (Based on RTP Assumptions)

			Employment by Category				
TAZ	**Population**	**Households**	**Retail**	**Service**	**Industrial**	**Other**	**Total**
351	120	43	30	215	53	192	490
352	188	64	218	394	57	1	670
353	148	64	19	71	3	0	93
354	304	132	19	76	5	0	100
355	368	133	0	120	6	0	126
357	39	15	2	2,220	0	5	2,227
362	46	16	96	232	74	8	410
369	311	113	1,805	706	586	124	3,221
370	28	13	212	408	5	6	631
371	41	19	189	502	26	0	717
372	573	278	24	245	2	62	333
373	926	398	56	462	0	107	625
380	273	130	151	317	222	0	690
382	83	39	55	138	63	19	275
Total	3,448	1,457	2,876	6,106	1,102	524	10,608

As discussed in Section 3, some vacant land is available within the study area for both residential development and for new employment sites.

For ease of comparison, Table 6 presents the growth in population, households and employment as used in the 2005-2030 RTP within the study area between 2002 and 2030.

Table 6. IAMP Planning Area Household and Employment Change by TAZ between Year 2002 and Year 2030 (Based on RTP Assumptions)

			Employment by Category				
TAZ	**Population**	**Households**	**Retail**	**Service**	**Industrial**	**Other**	**Total**
351	1	0	0	20	5	-95	-70
352	0	0	10	53	4	0	67
353	3	1	1	5	0	0	6
354	54	24	18	11	0	0	29
355	23	9	0	3	0	0	3

357	0	0	1	66	0	0	67
362	1	0	8	20	7	2	37
369	179	63	58	79	268	-17	388
370	1	1	186	195	2	0	383
371	7	4	8	89	3	0	100
372	95	55	0	4	0	10	14
373	400	201	23	48	0	0	71
380	130	64	28	138	21	0	187
382	-9	0	26	132	48	19	225
Total	885	422	367	863	358	-81	1,507

It is evident from Tables 6 that almost half the residential growth in the study area is predicted in TAZ 373 and only three others (TAZs 369, 372, and 380) are expected to add more than 50 households. Likewise, employment growth in the study area is expected to be concentrated. TAZs 369 and 370 are expected to account for half the employment growth in the study area, with each accounting for almost 400 new employees. Only two others (TAZs 380 and 382) are expected to add more than 100 new jobs.

5.2 Projected Year 2030 Traffic Volumes

As explained in Section 4, the traffic volumes were developed from household, population, and employment data in the 2005-2030 RTP and land use models. Since the goal of the IAMP is to assess traffic operations for a twenty-year period, year 2030 was used as the basis for future traffic operations analysis. Appendix B provides further explanation of the development of the future traffic volumes.

Year 2030 traffic volumes were developed by analyzing the actual traffic counts in the area from 2004 and results of the runs of the regional model for year 2010 and year 2030. The projected year 2030 volumes using this information are presented in Figure 5.

5.3 Predicted Year 2030 Traffic Operations Analysis

The traffic at the SPUI for year 2030 was analyzed using the same methodology described for year 2010 conditions. The configuration of the SPUI is identical, only the traffic volumes are changed. Synchro and SimTraffic were also used for the 2030 analysis.

Table 7 summarizes traffic operations analysis results for projected year 2030 traffic volumes and shows the SPUI to meet OHP mobility standards with a v/c of 0.58. Figure 5 shows the PM peak hour traffic volumes.

Table 7. Traffic Operations Analysis Summary – Year 2030

SPUI		Calculated V/C Ratio	ODOT V/C Standard	Calculated LOS
Overall		0.58	0.85	B
I-5 Southbound Off-Ramp	LT	0.61	0.85	C
	RT	0.35	0.85	A
I-5 Northbound Off-Ramp	LT	0.27	0.85	C
	RT	0.46	0.85	A

SPUI		Calculated V/C Ratio	ODOT V/C Standard	Calculated LOS
Garfield Northeast-bound	LT	0.80	0.90	C
	Thru	0.59	0.90	B
	RT	0.05	0.90	A
Highland Southwest-bound	LT	0.80	0.90	C
	Thru	0.38	0.90	B
	RT	0.14	0.90	A

In addition to calculating the v/c ratio for the intersection as a whole, the v/c was also calculated for each approach.[1] An analysis was also conducted of the queuing that occurs at the SPUI. The queuing at the SPUI is reported in Table 8.

Table 8. Queuing Summary – Year 2030

SPUI	Movement	Calculated 95th Percentile Queue	Storage Distance
Southbound Off-Ramp	LT	100	Na
	RT	50	200
Northbound Off-Ramp	LT	150	Na
	RT	225	200
Garfield Northeast-bound	LT	200	300
	Thru	225	Na
	RT	75	200
Highland Southwest-bound	LT	225	300
	Thru	150	Na
	RT	25	200

The results of this analysis were checked with the results from Final EIS and were again found to be very similar. The overall conclusion from this analysis is that the SPUI is expected to meet ODOT mobility standards through year 2030.

[1] The IAMP recommends Local Interest Road classification for the Highland-Garfield Connector.

2030 Volumes for IAMP from Regional Forecasting Model

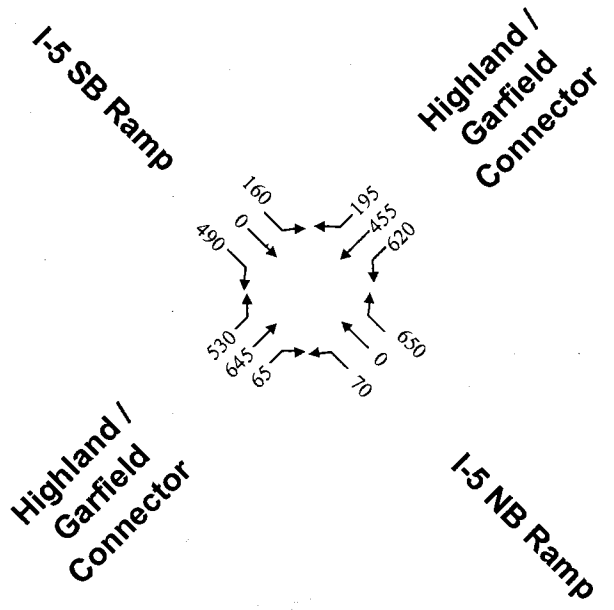

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FIGURE 5

2030 PM Peak Hour Traffic Volumes

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6 Alternative Development Scenario and Traffic Analysis

6.1 Alternative Future Development Scenario

As described in Sections 3 and 5, the RVMPO staff in cooperation with city representatives used the cities' comprehensive plans to develop the household, population and employment assumptions for the 2005-2030 RTP. These household, population and employment data were used in the regional traffic forecasting model which was the basis of the traffic analysis in the IAMP.

Two concerns were raised about employment and population assumptions during the development of the IAMP. The first was whether the traffic predicted by the regional traffic forecasting model reflected the type of employment that might occur in the study area. The second was whether the assumptions in the RTP adequately reflected the amount of residential development that might be expected in the study area, especially in light of the recent residential development proposals. The focus of these questions was whether more traffic might be generated by development in the immediate vicinity of the interchange than forecast in the regional model.

For this reason, an Alternative Development Scenario was developed to test the SPUI function if an additional 2600+ trips were added to the amount that was predicted for the study area by the regional model. For purposes of this test, more trips were assigned to employment uses and an additional 820 homes were added beyond the number predicted in the RTP. The results of the analysis using the higher trip rates of the Alternative Development Scenario indicated that the SPUI would still function adequately in year 2030 with an overall v/c of 0.70. This is well under the OHP mobility standard for the SPUI which is 0.85.

6.2 Alternative Development Scenario Trip Rates

The Alternative Development Scenario was based on the same employment levels described in Section 5 and summarized in Table 5. Instead of the rates used in the regional model, the Alternative Development Scenario was based on trip rates derived from the Institute of Transportation Engineers' *Trip Generation*, a standard reference document that provides data on trips generated by a wide variety of land uses. Trip generation rates from *Trip Generation* are typically applied to specific development proposals and are the basis for traffic impact studies required for site plan review, zoning changes and other land use actions. The Alternative Development Scenario does not, however, propose or assume any zoning changes or comprehensive plan amendments. Additional discussion of the development of trip generation rates can be found in Appendix D.

Table 9 indicates the trip rates applied to the Alternative Development Scenario for the retail, service, industrial, and other employment categories and for residential development.

Table 9. PM Peak Hour Trip Rates Applied to the Alternative Development Scenario

Employment Category (trip rate per employee)				Residential (trip rate per dwelling unit)
Retail	**Service**	**Industrial**	**Other**	Apartment
2.1	4.1	0.57	0.58	0.62

6.3 Alternative Development Scenario Trip Potential and Traffic Volumes

Six TAZs (352, 369, 370, 371, 380 and 382) were included in the Alternative Development Scenario because of their potential for additional residential development or their forecast employment growth in the retail and service sectors, and their proximity to the SMI. The development of new trip generation forecasts and traffic was applied to these TAZs using the higher trip rates from Table 9. The increased trip generation potential related to the Alternative Development Scenario and the comparison with the trip generation potential from the regional model is summarized in Table 10.

Table 10. Comparison of Trips Generated by the Alternative Development Scenario and by the Regional Model for Key Zones in the IAMP Planning Area

TAZ	PM Peak Hour 2030 Trips Using Original Rate from Traffic Forecasting Model	PM Peak Hour 2030 Trips Using Alternative Development Scenario Trip Rates from Table 9
352	571	688
369	2832	3018
370	523	1351
371	567	809
380	576	1319
381	205	708
Total	5274	7893

As shown in Table 10, the Alternative Development Scenario produces more than 2600 additional PM peak hour trips in these key zones. This is directly attributable to the higher trip rates assumed for new retail and service employment or to additional residential development. It is important to note that the impact of these additional trips is spread throughout the region and a relatively small portion of these trips go through the SPUI. Select zone runs from the regional model were used to distribute the trips resulting from the more intense development of these TAZs. Additional details are also found in Appendix D.

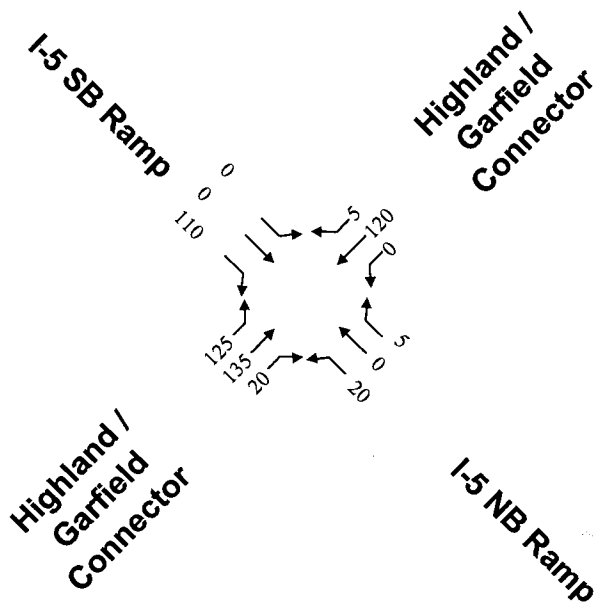
Traffic volumes at the SPUI for year 2030 developed from the Alternative Development Scenario are shown in Figure 6.

6.4 Traffic Operations Analysis for Alternative Development Scenario

The analysis of the Alternative Development Scenario year 2030 traffic at the SPUI was conducted using the same methodology described for year 2010 and the original 2030 volumes.

Table 11 summarizes traffic operations analysis results for Alternative Development Scenario year 2030 traffic volumes. It shows the SPUI meeting OHP mobility standards with a v/c of 0.70.

Added Volumes from the Alternative Development Scenario



2030 Volumes Based on Alternative Development Scenario

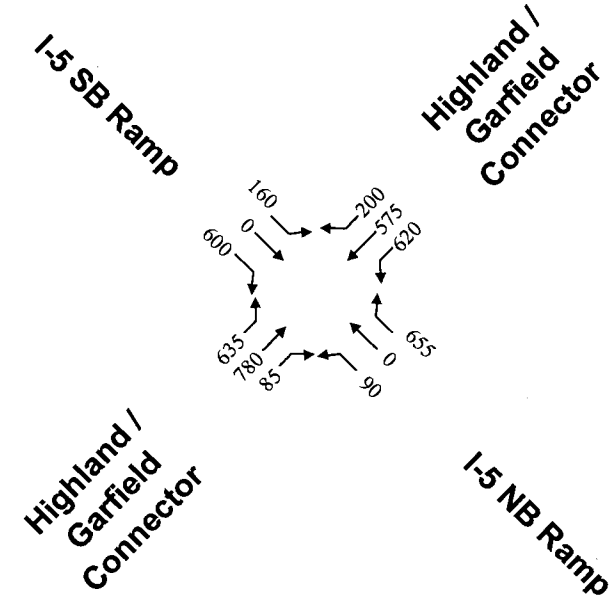


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FIGURE 6

2030 PM Peak Hour Traffic Volumes Alternative Development Scenario

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Table 11. Traffic Operations Analysis Summary – Alternative Development Scenario - Year 2030

SPUI		Calculated V/C Ratio	ODOT V/C Standard[2]	Calculated LOS
Overall		0.70	0.85	B
I-5 Southbound Off-Ramp	LT	0.78	0.85	D
	RT	0.43	0.85	A
I-5 Northbound Off-Ramp	LT	0.44	0.85	C
	RT	0.47	0.85	A
Garfield Northeast-bound	RT	0.70	0.90	B
	Thru	0.87	0.90	D
	LT	0.06	0.90	A
Highland Southwest-bound	RT	0.67	0.90	B
	Thru	0.63	0.90	C
	RT	0.14	0.90	A

In addition to calculating the v/c ratio for the intersection as a whole and for each approach, an analysis was also conducted of the queuing that occurs at the SPUI. The queuing at the SPUI is reported in Table 12.

Table 12. Queuing Summary – Alternative Development Scenario - Year 2030

SPUI	Movement	Calculated 95th Percentile Queue	Storage Distance
Southbound Off-Ramp	LT	75	na
	RT	125	200
Northbound Off-Ramp	LT	275	na
	RT	250	200
Garfield Northeast-bound	LT	175	300
	Thru	225	na
	RT	50	200
Highland Southwest-bound	LT	225	300
	Thru	175	na
	RT	25	200

The results of this analysis showed that additional traffic that might occur from the Alternative Development Scenario resulted in only a slight degradation of performance of the SPUI. Even with this additional traffic, the SPUI is expected to meet ODOT mobility standards through year 2030 with a v/c of 0.70. The only concern is the potential for queuing to exceed the available storage capacity during PM peak hour conditions, for short periods. However, signal timing and other operational adjustments can be made to reduce potential that queues will exceed available storage.

[2] The v/c ratio for the Highland-Garfield Connector reflects it recommended classification as a Local Interest Road.

7 Potential Future Management Measures

As indicated in Sections 5 and 6, the SPUI is predicted to continue to operate acceptably and meet ODOT mobility standards through year 2030 without any mitigation measures. Potential management measures are discussed in detail in Appendix A for possible future use in the study area and the region. These measures are not specifically needed to meet mobility standards for the twenty-year plan horizon, but could be implemented at some future time to extend the operational life of the interchange beyond this timeframe.

In addition to a description of these measures, Appendix A also includes a summary of their existing or potential use and cites the goals, policies and ordinance language that demonstrate support from local plans. Plan policies and ordinance language are cited to demonstrate that the City of Medford, as well as the MPO Region, acknowledge and support management measures that will provide future protection to the Interchange. These future management measures are described as follows:

7.1 Transportation Demand Management (TDM) Strategies

TDM strategies are designed to reduce vehicle miles traveled, especially in the peak periods. These strategies focus on the provision of services or facilities intended to shift travelers to different travel modes, or to travel at non-peak times, or to offer trip substitution choices such as telecommuting. The SMI study area is served by a Transportation Management Association, (TMA) which enables TDM measures to be effectively applied. This TMA was established in 2002 to meet an OTC requirement, prior to approval of alternative mobility standards for the existing South Medford Interchange at Barnett Road.

7.2 Transportation System Management (TSM) Strategies

TSM strategies are designed to make maximum use of existing transportation facilities and include traffic engineering measures such as signal timing changes, provision of turn lanes, turn restrictions, and restricting on-street parking to increase the number of travel lanes. Traffic operations affecting the study area will be refined after construction of the SPUI, to assure that it operates safely and efficiently.

7.3 Intelligent Transportation Systems (ITS) Management Strategies

ITS technology can enable agencies to monitor traffic, respond to traffic accidents faster and communicate with the motoring public in real time. ITS can also be used to control traffic without adding traffic capacity in the vicinity of the interchange, and includes transit signal priority, lane control signals and variable speed limit signs. The RVMPO has completed an ITS Architecture Plan for the Rogue Valley area, with the City of Medford assuming a prominent role in guiding plan development.

7.4 Ramp Metering

Ramp meters are typically used on the on-ramps to freeways and other limited access highways, to meter the rate of traffic flow entering the highway. Ramp meters can use a fixed-time signal to set minimum intervals between vehicles entering the freeway or they can adjust the rate of entering vehicles in response to the actual, real-time flow on the freeway. The RTP contains

policy language regarding the potential use of ramp meters in the MPO area. Ramp meters are successful when deployed throughout the corridor system, which means that to help alleviate congestion at the South Medford Interchange, ramp metering should be considered on all ramps entering I-5 over the entire MPO area.

7.5 Adopt Revised Standards for Parking with Lower Minimums and a Maximum

Reducing parking helps to discourage automobile use especially if combined with TDM measures, that provide positive incentives for people to use transit or carpooling for their trips. The City of Medford is required to develop a parking plan as a condition of DLCD approval of their TSP. This measure could be used for commercial and employment areas in the vicinity of the new interchange, to reduce traffic congestion.

7.6 Limiting New Trips or Land Use Changes in a Specific Study Area

Trip caps or trip budgets can be considered to limit the amount of additional traffic generated by new development in a specified management area. Although this tool was considered by the South Medford IAMP TAC for use in the study area, it was determined that it was not warranted at this time. It was also noted that much of the traffic affecting the new interchange was generated from beyond the interchange study area, which would make a trip budget within the study area less effective. Also, both the TPR and City code require ODOT review of land use changes in the interchange area, with mitigations applied to assure facility adequacy. Although not necessitated at this time, these measures could be incorporated at a future time, if needed to control trip generation.

8 Measures Recommended in the IAMP

Based on the analyses performed during this project, it is predicted that the SPUI will operate acceptably and will meet ODOT mobility standards throughout the twenty-year planning period. However, to protect the function of the new South Medford Interchange during and beyond the 20-year planning period, two management measures are recommended for inclusion in the adopted IAMP. These are measures are as follows;

1) The implementation of the Access Management Strategy – South Medford Interchange Project , 2003.
2) The inclusion of provisions in the IAMP from the Medford TSP and Land Development Code, that provide added protection for the function of the new interchange.

8.1 Implement Access Management Strategy

During the design phase for the interchange reconstruction project, ODOT developed the *Access Management Strategy – South Medford Interchange Project* in 2003, for the new South Medford Interchange in compliance with the OHP, Division 51, the City of Medford Comprehensive Plan and other local plans and policies. The strategy, which the Medford staff was given an opportunity to review, includes access management recommendations that support the project objectives of the South Medford Interchange Project balanced with the City of Medford's land use, local street, and economic development goals. All are consistent with state access management requirements for safe and efficient highway operations. This strategy is currently being implemented with the construction of the SPUI.

The Access Management Strategy provides a comprehensive inventory of all public and private approaches in the interchange area and identifies strategies that meet or improve current conditions, by moving towards the appropriate access management standards. The inventory identifies all rights of access between the adjoining properties and the state highway, including reservations and grants of access. It contains findings for Division 51 requirements including deviations. The strategy also develops a basis for a future intergovernmental agreement to transfer access review responsibility.

Key provisions of the Access Management Strategy are:

- Full access control along the Highland-Garfield Connector, a new facility that extends between Riverside Avenue and Barnett Road.
- The removal of the existing Barnett Road freeway ramps.
- Access changes to OR 99 including the closure of four existing access points and the conversion of some existing accesses to right-in, right-out only.

Figure 7 shows access management for the interchange area by jurisdiction and level. Figure 8 and Table 13 further explain the locations and access features that comprise this strategy.

Figure 7
Access Management Strategy Components
South Medford Interchange

Not to Scale

ODOT Jurisdiction

- Full Access Control
  (except for ODOT maintenance and PP&L substation maintenance)
- Right-In, Right-Out
- Reduced Access
  (some access closed and some access combined)

City Jurisdiction

- Full Access Control
- Right-In, Right-Out

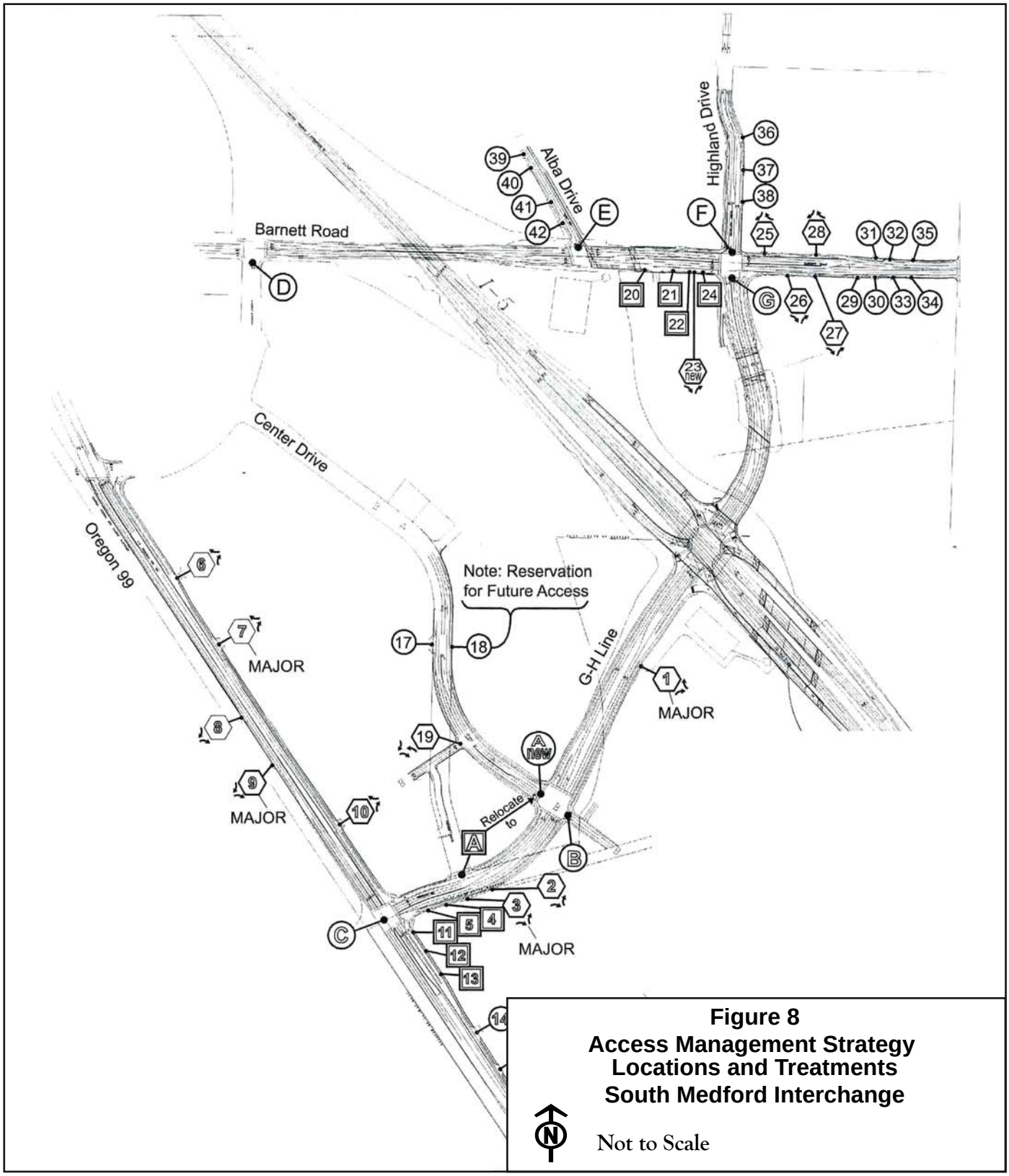

Figure 8
Access Management Strategy Locations and Treatments
South Medford Interchange

Not to Scale

① -- Permitted Full Movement

① -- Limited Movement (Permitted Movements Indicated)

1 -- Access Closed

MAJOR -- Access Requires Major Deviation

① -- Block Number Indicates ODOT Jurisdiction

Note: *Letters indicate Public Access*
Numbers indicated Private Access

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www.jrhweb.com

Table 13. Access List

Access number	Station	Left/ Right	Paved Width	Description	Public or Private	Code
G-H Line – Garfield Highland Connector						
1	0+626	L	4.2	ODOT Maintenances access to water quality facility and bridges	Private	MAJOR
2	0+014	L	10.3	Access for PP&L substation maintenance – right-in/right-out only	Private	C-O
3	0+046	L	10.3	Access for PP&L substation maintenance – right-in/right-out only	Private	MAJOR
4	0+075	L		Closing existing Les Schwab access	N/A	D-O
5	0+095	L		Closing existing Les Schwab access	N/A	D-O
A	0+032	R		Center Drive – replaced by access "A-new" – signalized	N/A	B-O
A-New	0+861	R	21.6	Center Drive (Relocated from A) - signalized	Public	A-O
B	0+861	L	11.4	Future public road, access for existing residence	Public	A-O
Highway 99						
C	0+893	L/R	26.0	Garfield-signalized-public road	Public	A-O
6	0+320	L	7.7	Armory Drive-right-in/right-out only	Private	C-O
7	0+432	L	11.4	Miles Field access-right-in/right-out only	Private	MAJOR
8	0+536	R	18.0	Oil Company-right-in/right-out only	Private	C-O
9	0+618	R	13.5	Oil Company-right-in/right-out only	Private	MAJOR
10	0+742	L	7.7	Rogue Federal Credit Union/Miles Field-right-in/right-out only	Private	C-O
11	0+925	L		Closing existing Les Schwab/Skinner access	N/A	D-O
12	0+963	L		Closing existing Les Schwab/Skinner access	N/A	D-O
13	0+001	L		Closing existing Les Schwab/Skinner access	N/A	D-O
14	0+101	L	16.7	Skinner/Naumes-full movement	Private	C-O
15	0+162	L	12.2	Naumes-full movement	Private	MAJOR
16	0+206	L		Closing existing restaurant access	N/A	D-O
Barnett Road						
20	0+596	R		Closing existing gas station access	N/A	D-M
21	0+614	R		Closed motel/restaurant access	N/A	D-M
22	0+638	R		Closing existing restaurant access	N/A	D-M
23 New	0+667	R	9.0	Motel and restaurant access-replaces 22 and 24 right-in/right-out	Private	B-M
24	0+678	R		Closing existing motel access	N/A	D-M
25	0+768	L	6.9	Highlander apartments- right-in/right-out only	Private	C-M
26	0+802	R	6.1	Vacant lot access- right-in/right-out only	Private	C-M
27	0+841	R	9.7	State farm westerly access- right-in/right-out only	Private	C-M
28	0+842	L	9.2	Vacant lot access- right-in/right-out only	Private	C-M
29	0+902	R	7.3	State Farm easterly access- right-in/right-out only	Private	A-M
30	0+927	R	9.2	Residence	Private	A-M
31	0+928	L	6.8	Woodcreek apartments and townhomes	Private	A-M
32	0+948	L	6.8	Lazy Creek professional condominiums	Private	A-M
33	0+954	R	6.2	Party Place-full movement	Private	A-M
34	0+978	R	7.5	Rogue Valley Manor Community Services	Private	A-M
35	0+981	L	3.9	AAA of Oregon	Private	A-M
D	0+033	R	21.2	Stewart Avenue-signalized-SB off-ramp removed	Public	A-M
E	0+513	L	9.9	Alba Drive-signalized with NB off-ramp removed	Public	A-M
F	0+721	L	20.1	Highland Drive intersection-north leg-signalized-public	Public	A-M

Access number	Station	Left/ Right	Paved Width	Description	Public or Private	Code
G	0+724	R	27.6	Highland Drive intersection-south leg-signalized-public	Public	A-O
Center Drive						
17	0+334	R	11.0	Miles Field/Armory access-full movement-future signal (per City)	Private	A-M
18	0+334	L	11	Reservation for future access to development (per City)	Private	A-M
19	0+475	R	7.3	RFCU/Miles Field-right-in/right-out, left turn only	Private	C-M
Highland Drive						
36	0+212	L	8.5	Apartment access north of Lazy Creek-full movement	Private	A-M
37	0+257	L	7.6	Apartment access-full movement	Private	A-M
38	0+303	L	7.1	Apartment access-full movement	Private	A-M
Alba Drive						
39	0+006	R	9.4	Motel 6 access-full movement	Private	A-M
40	0+029	R	7.6	Dairy Queen drive through-full movement	Private	A-M
41	0+086	R	9.5	Dairy Queen-full movement	Private	A-M
42	0+120	R	9.4	Dairy Queen/motel-full movement	Private	A-M
G-H Line – Garfield Highland Connector						
1	0+626	L	4.2	ODOT Maintenances access to water quality facility and bridges	Private	MAJOR
2	0+014	L	10.3	Access for PP&L substation maintenance – right-in/right-out only	Private	C-O
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4	0+075	L		Closing existing Les Schwab access	N/A	D-O
5	0+095	L		Closing existing Les Schwab access	N/A	D-O
A	0+032	R		Center Drive – replaced by access “A-new” – signalized	N/A	B-O
A-New	0+861	R	21.6	Center Drive (Relocated from A) - signalized	Public	A-O
B	0+861	L	11.4	Future public road, access for existing residence	Public	A-O
Highway 99						
C	0+893	L/R	26.0		Public	A-O
6	0+320	L	7.7		Private	C-O
7	0+432	L	11.4		Private	MAJOR
8	0+536	R	18.0		Private	C-O
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11	0+925	L			N/A	D-O
12	0+963	L			N/A	D-O
13	0+001	L			N/A	D-O
14	0+101	L	16.7		Private	C-O
15	0+162	L	12.2		Private	MAJOR
16	0+206	L			N/A	D-O
Barnett Road						
20	0+596	R			N/A	D-M
21	0+614	R			N/A	D-M
22	0+638	R			N/A	D-M
23 New	0+667	R	9.0		Private	B-M
24	0+678	R			N/A	D-M
25	0+768	L	6.9		Private	C-M
26	0+802	R	6.1		Private	C-M
27	0+841	R	9.7		Private	C-M
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Access number	Station	Left/ Right	Paved Width	Description	Public or Private	Code
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30	0+927	R	9.2		Private	A-M
31	0+928	L	6.8		Private	A-M
32	0+948	L	6.8		Private	A-M
33	0+954	R	6.2		Private	A-M
34	0+978	R	7.5		Private	A-M
35	0+981	L	3.9		Private	A-M
D	0+033	R	21.2		Public	A-M
E	0+513	L	9.9		Public	A-M
F	0+721	L	20.1		Public	A-M
G	0+724	R	27.6		Public	A-O
Center Drive						
17	0+334	R	11.0		Private	A-M
18	0+334	L	11		Private	A-M
19	0+475	R	7.3		Private	C-M
Highland Drive						
36	0+212	L	8.5		Private	A-M
37	0+257	L	7.6		Private	A-M
38	0+303	L	7.1		Private	A-M
Alba Drive						
39	0+006	R	9.4		Private	A-M
40	0+029	R	7.6		Private	A-M
41	0+086	R	9.5		Private	A-M
42	0+120	R	9.4		Private	A-M

Note: Some widths may be revised as the design is refined.

A-M Full movement approach – Medford jurisdiction
A-O Full movement approach – ODOT jurisdiction
B-M Approaches to be combined or relocated – Medford jurisdiction
B-O Approaches to be combined or relocated – ODOT jurisdiction
C-M Approaches to be converted to right-in, right-out– Medford jurisdiction
C-O Approaches to be converted to right-in, right-out— ODOT jurisdiction
D-M Approaches to be closed– Medford jurisdiction
D-O Approaches to be closed— ODOT jurisdiction
MAJOR Major deviation required– ODOT jurisdiction
MINOR Minor deviation required– ODOT jurisdiction

8.2 Include in the IAMP provisions from Medford's TSP and Land Development Code

As a second management measure, the IAMP recommends that the following goals and policies from the Medford TSP and ordinance language from the Medford Land Development Code be included in the adopted IAMP.

8.21 Medford TSP – Goals and Policies

Goal 2: To provide a comprehensive street system that serves the mobility and multi-modal transportation needs of the Medford planning area.

- **Policy 2-G:** The City of Medford shall undertake efforts to reduce per capita vehicle miles traveled (VMT) and single-occupancy vehicle (SOV) demand through TDM strategies.

- **Policy 2-M:** The City of Medford shall undertake efforts to contribute to a reduction in the regional per capita parking supply to promote the use of alternatives to the single occupancy motor vehicle.

Reducing VMT and reliance upon SOVs would have the effect of reducing traffic congestion both on local streets and upon the new interchange.

Goal 8: To maximize the efficiency of Medford's transportation system through effective land use planning.

Policy 8-B: The City of Medford shall undertake efforts to increase the percentage of dwelling units and employment located in Medford's adopted TODs, consistent with the targeted benchmarks in the Alternative Measures of the RTP.

Encouraging a more intense development in Transit Oriented Development areas, which contain mixed uses, bike and pedestrian facilities and transit service, will benefit both the interstate and local street network by reducing vehicle use and congestion. All of Medford's identified TODs are located outside the South Medford Interchange study area, which assures that some of the City's future development will be specifically focused outside the interchange area.

8.22 Medford Land Development Code

- **Section 10.146 Referral Agencies, Distribution:** Establishes the types of plan authorizations that the City notifies other agencies for review. This section requires the City Planning Department to notify ODOT regarding all major comprehensive plan amendments or amendments to the City's TSP. ODOT is also notified when other land use actions (including zone changes, Planned Unit Developments, land divisions and site plan reviews) occur in the proximity or adjacent to a state facility.

This requires that the City of Medford notify ODOT regarding specific proposals to insure that ODOT has the opportunity to direct the acquisition of any necessary traffic data and review the analysis. From this participation in the review process, ODOT is able to identify any impact upon state facilities and require the appropriate mitigations. ODOT involvement in the development review process will continue to protect the function of state facilities.

- **Section 10.227 Zone Change Criteria:** Requires applicants to demonstrate that Category A urban services or facilities are available, or can and will be provided for the subject property. Streets and street capacity must be provided by either i) streets that presently exist and have adequate capacity, ii) existing streets that will either be improved or new streets constructed to provide adequate capacity, by the time of building permit issuance, iii) for streets that must be constructed or improved, the Planning Commission may find that the street to be adequate if improvements are fully funded, iv) for streets that need to be improved, specific improvements must be identified and demonstrated to result in street adequacy.

The City of Medford applies this facility adequacy standard to all zone change requests. Assuring the adequacy of the local street system will have a positive impact upon the state

system. If local streets are developed and maintained to handle local traffic, less impact will occur to the state system.

- **Section 10.462 Maintenance of Level of Service D:** Whenever level of service is determined to be below level D for arterials or collectors, development is not permitted unless the developer makes the roadway or other improvements necessary to maintain level of service D respectively.

The requirement for a level of service D will assure that the City's local street network will remain viable for use by local traffic. This in turn affects the state system, as local traffic will continue to use the local system instead of relying upon state facilities.

8.23 Significance of Local Policy and Ordinance Language in the IAMP

The inclusion in the IAMP of specific Medford TSP Policy language and Land Development Code provisions means that upon IAMP adoption, these local policies and ordinances cannot be amended unless a corresponding IAMP amendment occurs. To amend the IAMP, ODOT and Medford staff would be required to work together to craft amendment language that would be acceptable to both the State and the City. Any corresponding TSP or ordinance amendment at the City level could not be approved unless and until the OTC completed its review and adoption of the proposed IAMP amendment.

The adoption of this IAMP will assure consistency between the IAMP, the Medford TSP and local code, both currently and in the future. The City of Medford has provided a letter dated October 22, 2007, stating that the IAMP is consistent with the City's TSP and supporting OTC adoption of the IAMP.