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## **REVIEW OF PLANS, STUDIES, AND POLICIES**

## REVIEW OF PLANS, STUDIES AND POLICIES

### CTUIR

#### **CTUIR Transportation System Plan (Developed with Highway 331 Corridor Plan)**

The purpose of this document is to develop a long-range Transportation System Plan (TSP) for the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), including the development of a prioritized list of transportation improvements. This document addresses the transportation needs of the Umatilla Indian Reservation over the next 20 years, and considers key modes of travel including roadway, bicycle, pedestrian, transit, and rail.

The Transportation System Plan shall also be used by the CTUIR when making decisions related to the classification of existing and future roadways on the Reservation, the implementation of roadway design standards when new roads are built or existing ones are improved, the needs of bicyclists and pedestrians and public transit, and the enforcement of access management policies.

#### **Four Corners Master Plan**

The Four Corners Master Plan was completed in March of 2000 and is a result of the Mission Community Plan policy to “Conduct a commercial needs study of the entire Mission Intersection to determine which types and mix of uses are most appropriate and developable.” The CTUIR is committed to a plan that will transform the Four Corners area into an economic asset for the Reservation community and the property owners. The Master Plan includes a market analysis and land development study of the area. The study concluded that the demand for the area was verified and is suitable for most land uses.

#### **CTUIR Comprehensive Plan**

The CTUIR Comprehensive Plan was adopted in May of 1996 to establish the long-range goals of the CTUIR for reference by the Tribal officials and departments and the CTUIR members. The Tribal Planning Office in consultation with the Tribe’s Natural Resources Commission and Board of Trustees prepared the Comprehensive Plan. The Plan sets out the history of the CTUIR, has a declaration of sovereignty, describes the tribal government, and has a comprehensive list of goals and objectives arranged by category. It was intended that the plan be used as a framework, and that plans would be developed addressing more specific topics. The Mission Community Plan, the Rural and Resource Lands Policy, and the Overall Economic Development Program are all plans that focus on sections of goals from the Comprehensive Plan. The transportation goals from the Comprehensive Plan have been incorporated into the CTUIR TSP.

#### **Mission Community Plan**

The Mission Community plan was adopted in June of 1998 and is considered an element of the CTUIR Comprehensive Plan. Its purpose is to provide a long range plan for the

growth and development of the Mission Community as a distinct social, economic, and cultural Indian community which meets the needs of the CTUIR. It includes an outline of existing elements of the community, the projected needs of the community, and a community plan that consists of policies and recommendations for several aspects of the community.

### **Plan for Growth Document**

The “Plan for Growth” Overall Economic Development Program (OEDP) Update document was completed in March of 1999. It is also considered to be an element of the CTUIR Comprehensive Plan. It draws its long-term goal from the Economic Development goal of the Comprehensive Plan, which is “to improve and diversify the overall economy of the Umatilla Tribes while respecting traditional cultural values.” The purpose of the OEDP is to provide assistance and information in planning economic development on the reservation, and to inform the general public of the Tribes’ intentions for economic development on the Reservation.

### **Umatilla Reservation Transportation Plan**

The Umatilla Reservation Transportation Plan, which was completed in September of 1987, is one of the Transportation Plans that the BIA had prepared for 10 reservations in the Northwestern United States. The plans determine and define the public transportation and road system needs of the reservations, and develop a need-based system to prioritize road improvement projects.

### **Indian Reservation Roads Program – Transportation Planning and Procedures Guidelines**

The Indian Reservation Roads Program was completed in October of 1999, and is a reference for transportation planning. It defines procedures and provides guidelines to be used by the FHWA, the BIA, and Indian Tribal Governments for IRR transportation planning.

### **Roadway Inventory and Project Request Guide**

The Road Inventory and Project Request Guide, completed in April of 1994, defines the BIA road system and construction need system. These definitions help create a verifiable system of roads for use in the allocation formula, and ensure an equitable distribution of IRR funds based on relative need. It includes an inventory of roads, sample forms and resolutions, and a draft of the “Formula B” rating method.

### **Traffic Impact Study for the Oregon Trail Interpretive Institute and the Wildhorse Resort**

This Traffic Impact Study was finished in October of 1994 to determine the traffic impacts of two proposed developments, the Oregon Trail Interpretive Institute and the Wild Horse Gaming Facility, and whether the traffic generated to the developments make any mitigations necessary. Both of the proposed developments are located off of Highway 331. This study was necessary to obtain an access permit to gain access to

Highway 331. The study concluded that the generated traffic does not have a significant impact on the highway facilities, and that such mitigations as turn lanes and traffic signals may be necessary in certain intersections.

## **Umatilla County**

### **Umatilla County Draft Transportation System Plan**

The Umatilla County Transportation System Plan, completed in November of 1999, focuses on the guides the management of existing transportation facilities and the design and implementation of future facilities for the next 20 years.

### **Umatilla County Public Transportation Needs Assessment**

The Umatilla County Public Needs Assessment was prepared to present the results of an assessment of the public transportation needs of the general public and special needs mobility in Umatilla County. The Assessment identifies gaps in service and recommends strategies to meet those gaps.

### **Umatilla County Comprehensive Plan**

The Umatilla County Comprehensive Plan was written in 1983 to meet the statewide requirements for planning. It was last amended in 1987. The plan is broken into three sections: the Introduction; Plan Elements – Findings, Recommended Policies; and the Plan Map. The Plan Elements section is broken into sections dealing with the fourteen goals. This includes a Transportation Element with findings and recommended policies.

### **Umatilla County Development Code**

The Umatilla County Development Ordinance was adopted in 1983, and last amended in November of 1991. In 1997 this ordinance was recodified and retitled as Chapter 1528 Development Code. The portions of the code most relevant to the Transportation System Plan include sections on off-street parking requirements, driveways, and road standards. Amendments to the development code include road standards for county roads.

### **Umatilla Public Transportation Needs Assessment**

This study was produced in June, 1999. The report presents an assessment of the public transportation needs in Umatilla County. It identifies where existing services are deficient and proposes strategies to meet the needs of the County. Recommendations in this report include the following:

- Communities and social service providers work together to coordinate and expand local intra-city programs. These services may expand to serve some of the rural unserved areas.

- Umatilla County work with its jurisdictions, the CTUIR, and Department of Human Resources to expand or establish general public intercity transit service.
- Umatilla County work with employers in Hermiston and Pendleton to establish rideshare service between both cities. This includes the development of a park-and-ride lot at each of the I-84 interchanges near Pendleton and Hermiston.

## State of Oregon

### **The Highway 331 Corridor Refinement Plan (Developed with the CTUIR TSP)**

The purpose of this study is to develop a long-range corridor plan to maintain the integrity/function of Highway 331 and the I-84 interchange, and to identify improvements required within the corridor to maintain acceptable traffic operations and safety while providing safe access to adjacent land uses. This plan was developed concurrently with the CTUIR TSP. The main components of this plan are a detailed access management strategy for Highway 331 and the identification of improvements that address all modes of transportation within the corridor planning area. It is ODOT's intention to use this document as a Public Facilities Plan for the highway.

### **1999 Oregon Highway Plan**

The purpose of the 1999 Oregon Highway Plan is to give policy and investment direction to the corridor plans and transportation system plans that are being prepared around the state while leaving the responsibility for identifying specific projects and modal alternatives to these plans. The Highway Plan has three main elements, the vision, the policy element, and the system element. The vision presents the existing conditions and the long-term goals of the state highway system, and describes the economic and demographic trends. The policy element contains the goals which have policies and actions to accomplish them. The system element contains an analysis of state highway needs, revenue forecasts, descriptions of investment policies and strategies, an implementation strategy, and performance measures. The two sections of this plan which are used are the highway mobility standards policy, and the access management goal.

The highway mobility standards are based on volume to capacity ratios, and were set forth with a 20-year planning horizon. The standards apply to all state highway sections to maintain acceptable and reliable levels of mobility by identifying performance expectations and guiding operations decisions to maintain acceptable performance. Corridor plans and mobility standards for routes that are important for through travel should be developed. Where a highway segment's volume to capacity ratio is substandard and cannot be brought up to standards, or improvements are not planned within the planning horizon, the performance of the highway segment should be improved as much as feasible. Where it would be infeasible to meet the standards in this policy, alternate highway mobility standards should be considered.

Access management strategies ensure safe and efficient highways consistent with their determined function. Safe and efficient operation is ensured through grade-separated

interchange areas, the placement of medians and median openings, and the location and spacing of intersections and approach roads. Requests for deviations from adopted access management standards and policies and appeals of both denied requests for approach roads and denied requests for deviations from adopted access management standards and policies must be managed to ensure statewide consistency.

### **1995 Oregon Bicycle and Pedestrian Plan**

The Oregon Bicycle and Pedestrian Plan's overall goal is to provide safe, accessible and convenient bicycling and walking facilities which encourage these alternate modes of transportation. The strategies that the Plan goes into in depth are design, signing and maintenance. Several types of bikeways are described, including bike lanes and shoulder bikeways. Bike lanes are recommended generally in urban areas to provide bicyclists with a safe space to travel. Standard proportions and recommended conditions are described for the bike lanes. Shoulder bikeways are more for rural areas where roads and highways may already have paved shoulders which can be used, or may have gravel shoulders which can be paved to accommodate bicyclists.

## **City of Pendleton**

### **Pendleton Transportation System Plan**

The Pendleton Transportation System Plan was finished in December of 1996. It is a multimodal plan which includes strategies to manage the growth and transportation needs of the community over 20 years. It includes a comprehensive analysis of the existing transportation system. It has four general strategies and three alternatives based on those strategies.

The plan includes an evaluation of the impacts of growth on the transportation system, an identification of short-term and long-term improvement, financing plan, transportation and land use policy recommendations to assist the City in implementing the TSP, and a description of the plan's compliance with the TPR.

## **SUMMARY OF TAC MEETING MINUTES**

# CTUIR TRANSPORTATION PLAN

## TAC MEETING

1:30-4:00 p.m.

Thursday, February 10, 2000

Tribal Planning Office / Large Conference Room

Umatilla Indian Reservation, Oregon

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## AGENDA

### I. Status of IRR Inventory

### II. Discuss Preliminary Transportation Needs

- Proposed Mission Road Improvements, Bike / Pedestrian Path alignment options and connection to Pendleton bike path system
- Mission Road Intersection Needs

#### Reservation Roadway Improvements Previously Identified

- Bicycle/Pedestrian Needs along Highway 331

### III. Items for Future Agenda

- Functional Street Classification and Street Design Standards
- Traffic Forecast
- I-84 Interchange Needs

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DAVID EVANS AND ASSOCIATES, INC.

DEA MEMORANDUM

TO: All TAC Members  
FROM: Brian Dunn  
DATE: February 16, 2000  
SUBJECT: **SUMMARY OF FEBRUARY 10 TAC MEETING MINUTES**  
PROJ. #: CTUI0000-0001  
COPIES:

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**SUMMARY OF FEB. 10 TAC MEETING MINUTES FOR CTUIR TRANSPORTATION SYSTEM PLAN**

THOSE PRESENT:

1. George Ruby- ODOT District 12
2. Teresa Penninger- ODOT Region 5
3. Jonathon Pendleton- ODOT Region 5
4. Gary Roberts- Umatilla County Roadway Dept. (Substitute For Hal Phillups)
5. Jim Beard- CTUIR Tribal Planning Office
6. Tom Shuman- BIA Roads
7. Doug Dunlap- BIA Roads
8. Terry Parrish- CTUIR Public Works
9. Jack Davis- CTUIR Tribal Planning Office
10. Brian Dunn- David Evans And Associates, Inc.

**STATUS OF IRR INVENTORY-**

The Indian Reservation Roadway (IRR) System includes all roads on the reservation including those which access the reservation (up to five miles in length or where these roads access another facility of a higher classification). Terry Parrish has committed to finishing the IRR inventory before the next TAC meeting on March 16. The results will then be reviewed to identify roadway deficiencies. Attached to this document is a table summarizing the roadway inventory elements.

Once the road inventory is finished, Terry Parrish will have all the information he needs to fill out the BIA 5704 forms and corresponding strip maps for entry into the BIA's IRR system. This effort will be done concurrently with the development of the CTUIR TSP.

Tom Shuman stated that the current IRR system for the reservation is out of date. He expressed the importance of having a complete inventory, so that the BIA can allocate the maximum amount of construction dollars to the Umatilla Indian Reservation.



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MISSION ROAD PROJECT (BIKE LANES OR MULTI-USE PATH)

Jim Beard said that construction could take place within the next year to install 6-foot bike lanes along Mission Road, from Highway 331 to the western boundary of the Reservation. This project would be funded through BIA construction dollars. Because this project is estimated to cost \$1,000,000, the CTUIR will need to borrow roughly five years into the future, meaning BIA construction dollars for other projects will not be available until then.

Brian Dunn indicated that since the CTUIR TSP is scheduled for completion by June of 2000, that this project would need to be included in the TSP.

Tom Shuman, from BIA, has been working for several months on final design plans to provide bike lanes along Mission Road. Tom said the bike lanes will terminate near the western boundary of the Reservation, near the access road to Hal's Trailer Court. He stated that the design plans have undergone a 30% review by the state and will soon be going through a 90% review. The design currently shows two 11-foot travel lanes along Mission Road, with the addition of 6-foot bike lanes and 2-foot paved shoulders on both sides of the road. This design allows for an additional 2 feet of gravel shoulder and open drainage ditches on both sides of the road. Since the road will be widened from both sides, the centerline will only move by as much as two feet, thus, minimizing the amount of fill and asphalt needed. The design also maintains the existing right-of-way between the residential properties on the south side of the road and the UPRR boundary on the north side of the road. Right-of-way is generally 30 feet to each side of the roadway centerline for a total right-of-way width of 60 feet.

Teresa Penninger asked about the possibility of constructing sidewalks along Mission Road along with bike lanes. Jim Beard said the area is zoned for general rural use according to the Mission Community Plan and that sidewalks would not be needed.

Upon further discussion, it was determined that the construction of bike lanes may not be the best solution to improved bicycle and pedestrian mobility along Mission Road. Jack Davis proposed another option. This was to construct a two-way multi-use path along the south side of Mission Road, in place of bike lanes. Several TAC members agreed that a path would be more beneficial to the residents who live mostly along the south side of Mission Road. A general consensus was reached that it would be possible to construct an 8-foot wide path on the south side of Mission Road with a 5-foot median, separating the path and road. This would allow for two 11-foot travel lanes on Mission Road and 4-foot paved shoulders on both sides. Tom Shuman supported the use of a painted median made of flat brick or other material, located between the paved roadway shoulder and path, to give drivers a clear distinction between path and travel lane and that it would not be impacted by snow plowing.

Tom Shuman indicated that a multi-use path option was considered before, but ended up being dropped because of the high construction cost, right-of-way impacts to adjacent landowners, and driver safety issues. Tom said it would cost \$3,000,000 to construct a multi-use path, which is roughly three times more money than to construct bike lanes. The higher cost would come from the need to move the centerline, or crown, of the road further to the north by 6 to 8 feet. Moving the centerline of the road by such a large distance would require more fill and a significant amount of asphalt to resurface the road and add a new crown. This project would also require acquisition of some right-of-way on the south side, impacting the property lines of adjacent land owners. To add a multi-use path while maintaining a general right-of-way width of 60 feet along Mission Road, this project will only allow for 4-foot paved shoulders on Mission Road. Tom indicated this distance is not wide enough for disabled vehicles to pull safely off the road.

*(This paragraph is from a phone conversation with Tom Shuman on February 15<sup>th</sup>). -Tom Shuman said that if the multi-use path option were pursued, efforts to secure funding, do the design, and contract the work could delay the*



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Mission Road project by more than a year or two. If the CTUIR were to secure 100% funding through the BIA to build a path, the Reservation would be borrowing more than 15 years into their future BIA budget. He said the Reservation may secure funding through a federal Public Lands Discretionary program. However, funding would not be guaranteed as this project would need to compete with other agency projects.

Discussion of whether to build bike lanes or a multi-use path also focused on the needs of buses. Currently, buses pull off onto the shoulder of Mission Road in each direction to drop off or pick up students. In some areas where turn outs are provided, they are able to pull completely off the road. For safety reasons, bus drivers will not allow students to cross the road in front of opposing traffic. Students must wait until their stop is on the right side of the road. Assuming 6-foot bike lanes and 4-foot shoulders are provided along Mission Road, buses can pull over and out of the through travel lane. However, most of the bike lane would be blocked. If a multi-use path were constructed, the resulting shoulder widths on Mission Road would force buses to remain in the travel lane and block traffic. *(Question for Jim Beard- Do buses stop traffic in both directions when picking up or dropping off students?)*

The discussion ended with the possibility of implementing either option. Brian Dunn stated that an evaluation of both options will be considered in the development of the Transportation System Plan. These two options may need to be considered by the public.

### BIKE/PED CONNECTION FROM RESERVATION TO CITY OF PENDLETON

Brian Dunn began the discussion of identifying a possible future bike/ped connection from the Reservation to the City of Pendleton. Such a connection would most likely start at the west end of the bike lane/multi-use path project along Mission Road, located at the western boundary of the Reservation. Brian provided background information on existing bike and ped facilities in northeastern Pendleton that may be good connecting points for such a facility. These facilities include:

- The River Pathway on the south side of the Umatilla River, just west of OR Highway 11, ending near the little league park (bike and pedestrian facility)  
A signed bike route along Court Avenue and 20<sup>th</sup> Street (bike facility),
- Bike lanes along OR Highway 11 from US Highway 30 to the east UGB line (bike facility), and
- Continuous and intermittent sidewalks along the north and south sides of US Highway 30, from the UPRR viaduct to the OR Highway 11 intersection (pedestrian facility).

Brian mentioned that City of Pendleton TSP recommends the River Pathway (already constructed) should extend along the south side of the Umatilla River and intersect OR Highway 11. However, in a phone conversation with Dave Lorenzen, the city engineer, Brian said that when the pathway was built a connection to the highway could not be made because of the topography of the area. The pathway currently ends at a rock cliff along the Umatilla River. A connection to this path would need to be made from the north side of the river or across the UPRR railroad and private property to the south. It was determined in the meeting that neither route would be a viable option.

Brian also stated that the Pendleton TSP shows bike lanes to be striped in the future along Court Avenue, 20<sup>th</sup> Street, and a portion of US Highway 30, from 20<sup>th</sup> Street to the east UGB line. Striping bike lanes along Court Avenue and 20<sup>th</sup> Street should not be an issue, since they are low volume roads and are already signed as part of a bike route. The future of establishing bike lanes along US Highway 30, east of 20<sup>th</sup> Street, is uncertain though.



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When considering the extension of bike lanes to Pendleton, Terry Parrish added that it would be possible to extend a bike lane from Mission Road to the OR Highway 11 intersection in the westbound direction, but not in the eastbound direction. The exit from US Highway 30 onto Mission Road in the eastbound direction currently goes under the US Highway 30 overpass. Terry said that the supporting structure is not wide enough to adequately accommodate a single travel lane and a bike lane. He also mentioned that this exit ramp does not get enough exposure to sunlight and that it is often icy during the winter months and would not be safe for bicyclists.

It was also determined that bicycle lanes cannot be established anytime soon along US Highway 30 through the intersection with OR Highway 11. George Ruby gave a summary of the general topography, type of businesses present along the highway, right-of-way constraints, and other traffic-related issues along US Highway 30 and at its intersection with OR Highway 11. He and other representatives from ODOT and the City of Pendleton recently performed a study to look at various options for improving the OR Highway 11 connection with US Highway 30. This main purpose of this effort was to address traffic safety at the intersection. No analysis was done to assess bicycle and pedestrian needs at this intersection, but George did state that bike lanes could not be striped along US Highway 30, given the existing pavement width. No formal recommendation was made as part of this study for future improvements to this intersection. George said that a traffic signal could conceivably be installed, but that it may be more than 20 years before this happened. If built, he said the type of geometric improvements necessary to install a traffic signal would then allow for the design of bicycle lanes along US Highway 30. In the meantime, he said that a more short-term goal for ODOT would be to acquire several businesses on the north side of US Highway 30 and obtain the necessary amount of right-of-way to extend the westbound merging lane from OR Highway 11. A general consensus was reached that bike lanes could not be striped along US Highway 30 through the intersection of OR Highway 11 within the next 20 years. Therefore, another option should be considered to move bicyclists and pedestrians through or around this intersection.

Brian Dunn raised the possibility of extending a path north from Mission Road and across the Umatilla River to connect with Riverside Avenue with another river crossing west of OR Highway 11 to connect with the Pendleton River Pathway. Terry Parrish said that there would be many environmental issues since the area lies within the floodplain. He also indicated that crossing OR Highway 11 would be difficult and that a route such as this would cause out-of-direction travel to Pendleton and few people would use it.

*Conclusions:* When considering the extension of a bike/ped facility to Pendleton, many factors were considered in the meeting, such as the topography of the land, the natural and man-made physical barriers such as the Umatilla River and the UPRR line, the existing development patterns along OR Highway 11 and US Highway 30, and other factors such as minimizing construction costs and out-of-direction travel. One possible conclusion reached by Brian Dunn would be to construct a multi-use path along the north side of Mission Road and US Highway 30, with an at-grade or grade-separated crossing at the OR Highway 11 intersection. Brian Dunn and George Ruby agreed to meet at this intersection before the next TAC meeting to discuss potential crossing points.

### MISSION ROAD/HIGHWAY 331 INTERSECTION NEEDS

Jim Beard highlighted the tribe's plans to construct a neighborhood convenience store on the northeast corner of this intersection. Two driveway accesses are proposed; one on Highway 331 and a second on Mission Road. Currently, there is a sidewalk constructed on the south side along Mission Road with a continuous driveway along most of the west side along Highway 331. George Ruby said that access will likely be permitted by ODOT on the west side along Highway 331, pending a review. Jim Beard indicated the development plans for the store show a single driveway access located at the north property line instead of the continuous driveway access that is there today. Jim said the tribe plans to build the store close to the corner of the intersection to provide a more pedestrian friendly



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environment at the intersection and that parking would be located at the rear of the property. No specific plans have been made for developing the commercially zoned parcel on the southwest corner of this intersection but Jim indicated that the design would be similar to the neighborhood store, where the building structure would be located close to the intersection.

Brian Dunn provided a description of the existing traffic control at this intersection. Currently, there are stop signs posted on the north and south approaches of Highway 331 with free flowing conditions along Mission Road. There are also flashing amber lights posted for Highway 331 traffic and flashing yellow lights for traffic on Mission Road. Brian also provided a three year accident summary for this intersection and identified a potential safety problem. Of the three accidents which took place during this time period, two involved vehicles on Highway 331 that did not yield right-of-way to free flowing traffic on Mission Road. Brian indicated there might be a perception problem where drivers traveling on Highway 331 believe vehicle on Mission Road must also come to a stop. Jack Davis agreed with this idea and added that there are many "close encounters" between vehicles at this intersection. He also added that the public wants to keep the existing traffic control so traffic can flow freely on Mission Road. Brian Dunn then gave a summary of the existing traffic operations at this intersection. According to traffic counts taken at this intersection in December 1999, traffic operations are at LOS A for all movements, meaning there is little or no delay. The intersection counts were also factored up by about 25% to account for peak seasonal conditions, which may exist in summer months like July. Traffic operations results were still at an acceptable level (LOS B). Assuming the intersection was to become a four-way stop, traffic operations would still remain at an acceptable level (LOS B). However, it should be mentioned that delay along Mission Road would increase slightly because of the four-way stop, but still within tolerable levels. Average delay would subsequently decrease along Highway 331.

Considering all of the above factors, the TAC agreed that a four-way stop should be established at this intersection once the convenience store is built. Brian also added that as part of this project, sidewalks should be constructed on all four corners, with the addition of handicap ramps and crosswalks. New sidewalks around 8-feet in width should also be constructed on west and south sides of the proposed convenience store along the entire property line. All of these improvements would create safer conditions for pedestrians who may be crossing the street and a four-way stop would still provide an acceptable level of operation for traffic on all intersection approaches.

Jim Beard asked about financial assistance from ODOT to help fund intersection improvements. George Ruby said the developer of the property should incur costs, which would be the tribe. He said ODOT would work with the developer on access location issues along Highway 331. Teresa Penninger said that sidewalk improvements will not be funded by ODOT since they will not provide a continuous connection to nearby neighborhoods along Highway 331. This led into a discussion on bike/ped needs along Highway 331 north of this intersection.

### BICYCLE/PEDESTRIAN NEEDS ALONG HIGHWAY 331

Jim Beard said residents need better access to the Umatilla River from Mission Road and that a bike/ped path would be good to have along Highway 331. Brian Dunn stated that there are shoulders along both sides of the highway at this time but that the railroad crossing is very narrow with little or no shoulders. There are also no sidewalks along the bridge over the Umatilla River. Teresa Penninger said that it would be unlikely the state would fund the construction of a multi-use path or sidewalks along the highway. Brian Dunn said the cost of building a path, modifying the existing railroad crossing, and retrofitting the bridge over the Umatilla River with sidewalks would be very expensive. These costly improvements may not be warranted given the small number of residents living north of the river and the generally rural land uses further to the north. Another option was then considered to build a path to the east of the highway with a direct connection to Mission Road and Kirkpatrick Road. This would require a



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pedestrian bridge over the river. With a path located in the Umatilla River floodplain it was explained that it could be submerged during a flood. Terry Parrish said the path could be located near the baseball park and a swimming hole. The idea of connecting such a path across from a major activity center such as the governmental offices and neighborhoods on Mission Road seemed reasonable. It would also allow bicyclists and pedestrians to access the new path now being constructed from this area to the Tumasklickt Cultural Institute and Gaming Resort.

RESERVATION ROADWAY PROJECTS PREVIOUSLY IDENTIFIED

A list of eleven roadway improvement projects previously identified by Naveen Chandra, the transportation planner formerly working for the CTUIR, was reviewed. Brian Dunn indicated this list should be considered when identifying roadway deficiencies at the next TAC meeting. He also stated that all projects along county roads were included in the Umatilla County TSP.

THE NEXT TAC MEETING IS SCHEDULED FOR MARCH 16

# **CTUIR TRANSPORTATION PLAN**

## **TAC MEETING**

**1:00-3:30 p.m.**

**Thursday, March 16, 2000**

**Tribal Planning Office**

**Umatilla Indian Reservation, Oregon**

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## **AGENDA**

- I. Summary of IRR Inventory**
  - **Identify Roadway Deficiencies**
- II. Traffic Forecast Summary**
- III. Future Traffic Operations**
- IV. Future I-84 Interchange Needs**
- V. Functional Street Classification and Street Design Standards**
- VI. Transit Needs on Reservation**
- VII. Future Topics to Address at Next Meeting**
  - **Preliminary List of Transportation Needs**
  - **Highway 331 Corridor Refinement Plan**



DAVID EVANS AND ASSOCIATES, INC.

DEA MEMORANDUM

2828 SW Corbett Avenue

TO: All TAC Members

FROM: Brian Dunn *BDD*

Portland, Oregon 97201

DATE: March 28, 2000

Tel: 503.223.6663

SUBJECT: **CTUIR TSP- MARCH 16 TAC MEETING MINUTES**

Fax: 503.223.2701

PROJ. #: CTUI0000-0001

COPIES:

**THOSE PRESENT AT MEETING:**

1. George Ruby- ODOT District 12
2. Teresa Penninger- ODOT Region 5
3. Jonathon David- ODOT Region 5
4. Hal Phillips- Umatilla County Roadway Dept.
5. Jim Beard- CTUIR Tribal Planning Office
6. Tom Shuman- BIA Roads
7. Terry Parrish- CTUIR Public Works
8. Jack Davis- CTUIR Tribal Planning Office
9. Patty Perry- Umatilla County Planning Dept.
10. Ken Eddy- ODOT Hermiston Office
11. Kathy Straton- ODOT Public Transit Division
12. Brian Dunn- David Evans And Associates, Inc.

**STATUS OF IRR INVENTORY**

Terry Parrish stated that the IRR Inventory is complete. However, the results of the inventory could not be reviewed before this meeting to identify a preliminary list of roadway deficiencies.

**EXISTING AND FUTURE TRAFFIC OPERATIONS & 20-YEAR TRAFFIC FORECAST**

A packet was handed out containing a technical summary of the existing and projected future traffic conditions for the reservation. Also included was the methodology used to produce a 20-year traffic forecast.

The existing and future traffic operations for intersections along Highway 331 were identified by the Level-of-Service (LOS) and equivalent volume-to-capacity (V/C) ratios for the critical movements. George Ruby and Teresa Penninger said they would like to have a single V/C ratio shown for the critical movements at these intersections instead of an equivalent range of V/C ratios. Brian Dunn said he would address this topic and make the appropriate changes.

A discussion then began on what are acceptable standards for traffic operations. ODOT now follows a policy of maintaining specific highway mobility standards. George Ruby from ODOT said he would like the see the tribe adopt the same operating standards outlined in the 1999 Oregon Highway Plan, and apply them to reservation roads.



## DAVID EVANS AND ASSOCIATES, INC.

All TAC Members  
March 28, 2000  
Page 2

These standards set minimum levels of operation for roadways and intersections based on volume-to-capacity (V/C) ratios instead of Level-of-Service. Jim Beard stated the tribe might adhere to a LOS D or even a LOS C or better policy for roads on the reservation. Brian Dunn indicated that if the tribe wants to mitigate a roadway deficiency because it does not meet a LOS C or better standard, and the said roadway or intersection approach is along a state highway, then the minimum standard automatically defaults to the 1999 Oregon Highway Plan standards.

The future 20-year traffic forecast prepared for the CTUIR TSP was developed with the assistance of the CTUIR Comprehensive Planning Manager and the ODOT Region 5 Traffic Operations Manager.

### **POSSIBLE MITIGATIONS TO PROJECTED CAPACITY DEFICIENCIES ALONG HIGHWAY 331**

Based on the future traffic operations analysis, several projects were identified to mitigate future capacity deficiencies along Highway 331. These projects were included in the technical summary provided to the TAC members.

- Mission Road- Establish a four-way stop.
- I-84 EB Ramps- Install a traffic signal and provide exclusive left and right-turn lanes on the off-ramp approach.
- I-84 WB Ramps- Install a traffic signal and provide exclusive left and right-turn lanes on the off-ramp approach, and a right-turn lane on the north approach.
- New Intersection South of Mission Road- Install stop signs on the minor side-street approaches and exclusive left-turn lanes on the highway.
- New Intersection North of I-84- Install a traffic signal, provide exclusive left-turn lanes on the highway with exclusive left-turn phasing on the north and south approaches.

### **OTHER POTENTIAL IMPROVEMENTS**

The proposed new intersection along Highway 331 north of I-84 (exact location unknown) led to a discussion of eliminating the existing Kash Kash Road access, which is only about 100 feet north of the I-84 WB ramps, and rerouting Kash Kash Road further to the north with a new access to Highway 331. This new access would constitute the east leg of the proposed new intersection. George Ruby said that the location of this new intersection should consider the access spacing requirements set forth in the new 1999 Oregon Highway Plan for highway interchange areas. He said the State would work with the tribe to find a location that is agreeable by both agencies.

George Ruby mentioned that a non-traversable median would need to be established along the highway between the I-84 WB ramps and the proposed new intersection if other driveway accesses are created in this area. A non-traversable median would extend down the middle of the highway and could either be in the form of 9-inch raised curbing or a taller barrier such as a concrete New Jersey barrier. Both types of medians would prevent vehicles from making left turns from driveways, forcing a right-in and right-out only situation. George mentioned that even with the appropriate signing and channelization at new right-in right-out accesses without a non-traversable median, drivers have been known to make illegal left turns.

Although no capacity deficiency was identified in the future traffic operations analysis, Brian Dunn stated it would improve driver safety if an exclusive left-turn lane was established at the highway's north approach to the road



## DAVID EVANS AND ASSOCIATES, INC.

All TAC Members  
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accessing the Wildhorse Gaming Resort and Tamastlikt Cultural Institute. Currently through traffic and vehicles making left-turns must share a single travel lane. Since the posted speed is 55 mph, it will become increasingly important to separate the slower vehicles making a left turn from the faster through traffic.

### TRANSIT NEEDS ON RESERVATION

Kathryn Straton from ODOT Public Transit Division in Salem spoke about the various programs and funds that are available for communities to establish public transit. Kathryn deals with grants management and works with the FTA to get grants for small communities to establish public transit services.

She said that with the passage of the new Federal Transportation Efficiency Act for the 21<sup>st</sup> Century, or TEA 21 bill, funding for public transit through Surface Transportation Program (STP) Funds has increased substantially, including the money available to rural areas. In rural areas, these funds are distributed by the state and can be used for small communities that already have a public transit service or need a service. Funds are generally limited to capital projects, such as the purchase of vehicles and operating funds. Funds cannot be used for planning purposes.

Another source of funding is through the Federal Transit Administration (FTA) which sponsors a program for general transit services in small urban and rural areas. These funds are distributed through the ODOT Public Transit Division and can be used for capital and operation needs.

Kathryn stated that there are two funds that currently have money obligated for establishing public transit on the Umatilla Indian Reservation. The first fund is through the FTA program, where the state has obligated \$56,000. In order for the CTUIR to receive these funds, the tribe must provide matching funds up to 50% for operating uses and 20% for capital expenses. The second program is also through the federal government, where a small properties package program has set aside \$43,200 for the CTUIR. This money can only be used for capital investments.

Kathryn recommended that a transit component be placed in the CTUIR TSP. She said herself and another coworker from ODOT could assist the tribe in meeting the federal requirements and regulations, with buying equipment, and with the public involvement process. She said Milton-Freewater and Pendleton are currently using FTA funds to establish transit services that are open to the public.

Jim Beard said that a transit component should be placed in the TSP, with a recommendation for the CTUIR to perform a detailed assessment of what the public transit needs are in the community (i.e. fixed route service, use of Casino shuttles, establishing a park and ride at the Casino, public transit service integrated with nearby cities, dial-a-ride program). He said once these needs are fully assessed, then the CTUIR should incorporate identified transit-related projects into the Transportation System Plan and pursue available federal and state funding.

### ROADWAY FUNCTIONAL CLASSIFICATION AND STREET DESIGN STANDARDS

The CTUIR TSP will classify all roads on the reservation according to roadway jurisdiction (State, County, BIA, Tribe, and private). The State, County, and BIA have their own street design standards, which will be applied when new roads are built or existing roads are improved. However, there are no design standards for Tribally owned and private roads. Jim Beard said the design standards for new roads built by the tribe should coincide with the BIA standards, since the tribe wishes to ultimately have all tribally owned roads turned over to the BIA. Tom Shuman said roads can qualify for inclusion into the BIA system if there are at least three homes along the road, and the road has an easement or right-of-way.



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Jim Beard would like to the TSP to address standards for privately owned roads built on the reservation. These standards should address requirements for easements, type of roadbed surface, roadway width, presence of curb and gutter, sidewalks, and number of homes required along the road. Brian Dunn said that the BIA and County have good ordinances to use as a base and would work with the tribe to develop these standards as part of the TSP.

**AGENDA FOR NEXT MEETING (MAY BE REVISED)**

- Preliminary list of transportation improvements
- Process to prioritize projects
- Kick-off meeting for the Highway 331 Corridor Refinement Plan



CONFEDERATED TRIBES  
of the  
*Umatilla Indian Reservation*

P.O. Box 638  
PENDLETON, OREGON 97801  
Phone: (541) 276-3099  
Fax: (541) 278-5393



**CTUIR TRANSPORTATION PLAN**

**TAC MEETING**

**1:00 p.m. - 3:00 p.m.**  
**Wednesday, April 12, 2000**  
**Tribal Planning Office**  
**Umatilla Indian Reservation, Oregon**

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**AGENDA**

- I. Summary of IRR Inventory
- II. Preliminary List of Transportation Improvements
- III. Project Prioritization
- IV. Kick-off Meeting for the Highway 331 Corridor Refinement Plan
- V. Future Topics to Address at Next Meeting
  - Finalize List of Transportation Improvement Projects (With Costs)
  - Sources of Funding



**CTUIR TRANSPORTATION PLAN  
&  
HIGHWAY 331 CORRIDOR REFINEMENT PLAN**

**TAC MEETING**

**1:00 p.m. - 3:00 p.m.  
Wednesday, May 17, 2000  
Tribal Planning Office  
Umatilla Indian Reservation, Oregon**

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**AGENDA**

**CTUIR TRANSPORTATION PLAN**

- I. Summary of IRR Inventory
- II. Go Over Preliminary List and Map of Prioritized Transportation Improvements  
(WITH ADDITIONAL PROJECTS AND COSTS)
- III. Set a Schedule for Producing a Draft TSP for TAC Review.

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN**

- I. Establish Goals and Objectives
- II. Spreadsheet Summary of Access Locations Along Highway 331
- III. Go Over Maps Showing Highway Access Locations and Identify Where 1999 OHP  
Standards Are Met and Not Met
- IV. Potential Locations of New Access Points



DAVID EVANS AND ASSOCIATES, INC.

MEMORANDUM

TO: All TAC Members  
FROM: Brian Dunn *bjd*  
DATE: June 1, 2000  
SUBJECT: **CTUIR TSP/ HIGHWAY 331 CORRIDOR REFINEMENT PLAN  
-MAY 17 TAC MEETING MINUTES**  
PROJ. #: CTUI0000-0001/ ODOT 0000-0331.02  
COPIES: CC: Ken Ratcliff

2828 SW Corbett Avenue

Portland, Oregon 97201

Tel: 503.223.6663

Fax: 503.223.2701

**THOSE PRESENT AT MEETING:**

1. George Ruby- ODOT District 12
2. Teresa Penninger- ODOT Region 5
3. Jonathon David- ODOT Region 5
4. Hal Phillips- Umatilla County Roadway Dept.
5. Ken Ratcliff- BIA Northwest Regional Office
6. Terry Parrish- CTUIR Public Works
7. Sandra Alexander- CTUIR Public Works
8. Jack Davis- CTUIR Tribal Planning Office
9. Patty Perry- Umatilla County Planning Dept.
10. Ken Eddy- ODOT Hermiston Office
11. Brian Dunn- David Evans And Associates, Inc.

**CTUIR TRANSPORTATION SYSTEM PLAN**

**Summary Of Indian Reservation Roads (IRR) Inventory**

Brian Dunn has completed a review of the IRR inventory created by Terry Parrish. At this time, there are numerous roads that have not yet been recorded (county, tribe, private, and other orphan roads with no public right-of-way). At the next meeting, Brian will supply a list of the remaining roads that are shown on the Umatilla County road maps. It should be noted that if the tribe plans to have the BIA improve an existing road in the future, construction dollars cannot be distributed by the BIA unless the roadway has been officially entered into the IRR system. This also applies to the construction of new roads. Brian will update the IRR inventory to include a section for proposed roadways (according to the preliminary list of transportation projects) along with supporting information that would allow the tribe to fill out the BIA-5704 forms and strip maps.



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**Preliminary List And Maps Of Prioritized Transportation Improvements**

A packet was handed out containing a preliminary list of transportation improvement projects along with two maps showing the locations of these projects. One map shows the projects within the Mission Community area and the other showing the remaining projects on the reservation.

The prioritization and descriptions of several projects have been changed based on the previous TAC meeting in April. In addition to these changes, planning level cost estimates have been provided for each project in terms of year 2000 dollars. A list of unit costs will be provided in an appendix of the draft TSP.

Brian mentioned that the list of projects is not final since the Highway 331 Corridor Refinement Plan could identify new project needs. This list will be refined as the Highway 331 plan progresses.

Projects #5 (River Road) and #9 (Parr Lane) involve railroad crossings that need improvement. It is unclear at this time if these crossings are open to the public, private, or illegal. Brian will be contacting ODOT's rail section to determine what processes are needed to make these crossings open to the public so that the tribe or BIA can make the necessary improvements.

Ken Ratcliff stated that the BIA route numbers should be shown in the list of prioritized improvements.

**Set A Schedule For Producing A Draft TSP For TAC Review**

At the meeting Brian stated that he would have a draft of the CTUIR TSP report ready for TAC review by the next meeting on June 15. *Since there are several tasks remaining on the Highway 331 Corridor Plan schedule that could result in changes or additions to the CTUIR TSP, this deadline will be pushed back to the next TAC meeting for the month of July.* Drafts will also be made available for review by the CTUIR Economic Development Commission (EDC) and the Tribal Emergency Response Commission (TERC). Once comments are received from the TAC, EDC, and TERC, DEA will work to produce a second draft that addresses these comments and encompasses the conclusions of the Highway 331 Corridor Plan. It is estimated that this second draft will be presented to the CTUIR Natural Resources Committee (NRC) in August.

According to the project schedule, there are to be two meetings scheduled with the NRC. Brian will contact the NRC to see if a meeting will be needed prior to presenting the committee with the second draft report. If needed, Brian will schedule the meeting around the time of the July TAC meeting.

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN**

**Establish Goals and Objectives**

The following goals and objectives were established for the Highway 331 Corridor Refinement Plan:

**OVERALL TRANSPORTATION GOAL**

Develop a long-range detailed plan to maintain the integrity/function of Highway 331 including the area around the I-84 interchange.



DAVID EVANS AND ASSOCIATES, INC.

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Goal 1

Preserve the function, capacity, level of service, and safety of Highway 331 and the I-84 interchange.

Objectives

- A. Develop an access management strategy that coincides with the Oregon Highway Plan standards.
- B. Provide access to adjacent land uses while maintaining acceptable traffic operations and safety. *(new)*
- C. Develop alternative, parallel routes.
- D. Promote alternative modes of transportation.
- E. Promote Transportation Demand Management (TDM) programs.
- F. Promote Transportation System Management (TSM).
- G. Evaluate areas where safety is a concern. *(new)*

Goal 2

Improve coordination between the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), Umatilla County, the Bureau of Indian Affairs (BIA), and the Oregon Department of Transportation.

Objectives

- A. Develop site-access review guidelines, which address the CTUIR, county, BIA, and state interests.
- B. Provide notification to other interested parties so that they may participate in development review processes.
- C. Work collectively to protect and minimize the impacts to transportation facilities within the corridor.
- D. Cooperate with ODOT in the implementation of the Statewide Transportation Improvement Program (STIP).
- E. Take advantage of federal and state highway programs.
- F. Identify plan-adoption requirements and ordinance modifications needed to properly bind the Highway 331 Corridor Plan with the CTUIR and Umatilla County TSP's and the Highway 11 Corridor Plan.

Goal 3

Increase the use of alternative modes of transportation (walking, bicycling, and public transportation) through improved access, safety, and service.

Objectives

- A. Support existing public transit services and seek additional opportunities.
- B. Provide sidewalks or shoulders and safe crossings on collectors and arterials.

Goal 4

Continue to promote the use of Highway 331 as an alternative truck route to OR Highway 11 through Pendleton.

Objectives

- A. Provide safe and convenient access at the I-84 interchange.



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**Maps Showing Existing and Potential Access Locations**

Five figures were distributed to the TAC showing the locations of all existing access points (intersections and driveways) along Highway 331, from OR Highway 11 to south of the I-84 interchange. Also shown on these maps are highlighted areas where the Oregon Highway Plan access standards are currently being met and where they are not being met. These maps will be updated to show individual parcels and land use information.

**AGENDA FOR NEXT MEETING (MAY BE REVISED)**

- Using the updated access locations maps:
  1. Confirm what are existing and future land uses for the corridor.
  2. Identify specific future access locations
- Review existing and planned pedestrian and bicycle facilities.
- Identify alternative, parallel routes
- Identify network of arterial, collector, and local roads required to accommodate future development within the corridor.

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN  
&  
CTUIR TRANSPORTATION PLAN**

**TAC MEETING**

**1:00 p.m. - 3:00 p.m.  
Thursday, June 15, 2000  
Tribal Planning Office  
Umatilla Indian Reservation, Oregon**

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**AGENDA**

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN**

- I. Review Existing Access and General Land Use Maps**
- II. Develop Access Management Strategy for Highway 331 (this will focus mainly on the area between the I-84 Interchange and the Casino Entrance)**
  - A. Identify future access locations and where existing ones will be closed
  - B. Develop sequence of improvements
- III. Identify Parallel Travel Routes (address all modes of transportation)**

**CTUIR TRANSPORTATION PLAN**

- I. IRR Inventory**
- II. Project #23: Highway 331 Median Improvement Options**
- III. Producing a Draft TSP for TAC Review.**



DAVID EVANS AND ASSOCIATES, INC.

DEA MEMORANDUM

2828 SW Corbett Avenue

TO: All TAC Members

Portland, Oregon 97201

FROM: Brian Dunn, P.E.

DATE: June 19, 2000

Tel: 503.223.6663

SUBJECT: **HIGHWAY 331 CORRIDOR REFINEMENT PLAN / CTUIR TSP  
JUNE 15 TAC MEETING MINUTES**

Fax: 503.223.2701

PROJ. #: ODOT0000-0331.02/ CTUI0000-0001

COPIES: CC: Ken Ratcliff

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## THOSE PRESENT AT MEETING:

1. George Ruby- ODOT District 12
2. Teresa Penninger- ODOT Region 5
3. Jonathon David- ODOT Region 5
4. Tom Shuman- BIA Warm Springs Area
5. Ken Ratcliff- BIA Northwest Regional Office
6. Sandra Alexander- CTUIR Public Works
7. Jim Beard- CTUIR Tribal Planning Office
8. Jack Davis- CTUIR Tribal Planning Office
9. Patty Perry- Umatilla County Planning Dept.
10. Brian Dunn- David Evans And Associates, Inc.

## HIGHWAY 331 CORRIDOR REFINEMENT PLAN

### *Review Existing Access and General Land Use Maps*

The TAC went over the five figures showing existing access locations, general land uses, and parcel (property line) data. Jim Beard said the general land uses shown in these figures represent future land uses. Brian Dunn said the figure titles will be adjusted to reflect this.

Teresa Penninger said she is having ODOT in Salem research current records for Highway 331 to confirm legal access locations and right-of-way.

There are several accesses along Highway 331 that were not captured in the initial survey. These locations will be pinpointed and added to the figures. A question was raised regarding how the State define's an existing access point. George Ruby said that when ODOT is processing applications for future access permits, the agency considers a location where vehicles enter or exit the highway to be an access, whether it's legally permitted or not. This includes the areas where farming vehicles access adjacent fields.

Access #25 and #26 are the first two driveways to the Arrowhead Truck Plaza. Even though the truck stop is located in an area zoned for a future tourist commercial land use, these accesses are located within a future



## DAVID EVANS AND ASSOCIATES, INC.

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accesses are staggered by about 50 feet and would ultimately be realigned so they intersect the highway directly across from each other. About 270 feet north of the dirt road, trucks enter and leave the highway to access several storage tanks. To meet OHP standards, the access to this area would need to be restricted along the highway and an alternate access would need to be provided along the dirt road when it is improved.

Although the "preferred" option does have some deviations from the OHP spacing standards, the TAC agrees that it is a viable option when presented as a "packaged deal". The tribe is proposing to remove a total of five driveway accesses to the existing truck stop on the east side of the highway and one access on the west side of the highway which serves an abandoned home but is still being used by agricultural vehicles.

### ***Identify Parallel Travel Routes (address all modes of transportation)***

The TAC was not able to fully address this topic because of timing constraints. It will be discussed as a topic at the next meeting in July.

## **CTUIR TRANSPORTATION PLAN**

### ***IRR Inventory***

Brian Dunn presented Jim Beard and Jack Davis with an updated spreadsheet summary of the IRR Inventory. A separate packet was distributed of all roadways on the reservation that have yet to be surveyed. Jack Davis has been assigned the duty to complete the inventory.

### ***Project #23: Highway 331 Median Improvement Options***

This topic was discussed by the TAC prior to developing an access management strategy for Highway 331 near the I-84 interchange. Initially, there were two options identified in the CTUIR TSP for adding a non-traversable median along Highway 331 between the I-84 westbound ramps and the proposed intersection located 1,320 feet north of the ramps. The limits of this project will now extend further north, extending up to the employee entrance road to the casino at a distance 2,160 feet north of the westbound ramps.

The tribe has expressed an interest in developing a landscaped median along the highway rather than raised curbing alone, as they wish to establish a "gateway" to the Mission Community area from I-84. Two typical highway cross-sections were evaluated in the meeting, each one incorporating a landscaped median. The first cross-section is designed for an urban environment where bicyclists and pedestrians have facilities that are separate from the highway traffic lanes. This cross-section involved two 12-foot travel lanes separated by a 14-foot landscaped median, with 6-foot bike lanes and 6-foot sidewalks along both sides of the highway. With sidewalks, underground storm drainage would be needed. The second option is for a more rural environment, where bicyclists and pedestrians may share the paved shoulder, which is separated from the highway traffic lane by striping. Under this option, the landscaped median and travel lanes are maintained, but 8-foot paved shoulders are provided along both sides of the highway. Exposed or open storm drainage may be provided under this option.



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When evaluating which cross-section would be best for Highway 331 near the I-84 interchange, Teresa Penninger stated that the Transportation Planning Rule of Oregon mandates bikeway and sidewalk facilities for all arterial improvements located in urban areas. It was concluded, therefore, that the more urban cross section should be provided along both sides of the highway from the casino employee entrance road down to the proposed right-in access on the east side and the proposed right-out access on the west side. From these access points to the overpass over I-84, the TAC agreed that the rural cross section would suffice. Jim Beard said that when the proposed industrial and residential developments along the west side of South Market Road are constructed, a path could be constructed on the west side providing access to the freeway overpass. This may lead to the addition of another project in the CTUIR TSP. On the overpass itself, there are two travel lanes with wide shoulders on both sides. The potential need for improvements on the overpass will be discussed at the next meeting.

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN  
&  
CTUIR TRANSPORTATION PLAN**

**TAC MEETING**

**1:00 p.m. - 3:00 p.m.  
Wednesday, July 12, 2000  
Tribal Planning Office  
Umatilla Indian Reservation, Oregon**

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**AGENDA**

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN**

- I. Develop Access Management Strategy for Highway 331**
  - Area around Mission Road
  - South of I-84
- II. Identify Parallel and Connecting Travel Routes**
  - Address all modes of transportation
- III. Transportation Demand Management (TDM) Measures/ Transportation System Management (TSM) Measures**
- IV. Transit Needs**
  - Revisit tribal needs (kids to school, welfare program, fixed route service)

**CTUIR TRANSPORTATION SYSTEM PLAN**

- I. Bicycle and Pedestrian Needs Along Highway 331**
  - From Mission Road to I-84
  - Across the I-84 Overpass



DAVID EVANS AND ASSOCIATES, INC.

DEA MEMORANDUM

2828 SW Corbett Avenue

TO: All TAC Members

Portland, Oregon 97201

FROM: Brian Dunn, P.E.

DATE: August 15, 2000

Tel: 503.223.6663

SUBJECT: **HIGHWAY 331 CORRIDOR REFINEMENT PLAN / CTUIR TSP**  
**JULY 12 TAC MEETING MINUTES**

Fax: 503.223.2701

PROJ. #: ODOT0000-0331.02/ CTUI0000-0001

COPIES: CC:

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**THOSE PRESENT AT MEETING:**

1. George Ruby- ODOT District 12
2. Teresa Penninger- ODOT Region 5
3. Jonathon David- ODOT Region 5
4. Tom Kuhlman- ODOT Region 5 (Traffic Operations Manager)
5. Tom Shuman- BIA Warm Springs Area
6. Jim Beard- CTUIR Tribal Planning Office
7. Jack Davis- CTUIR Tribal Planning Office
8. Laura Kordatzky- CTUIR Administrator
9. Bill Tobey- CTUIR Department of Economic Development
10. Patty Perry- Umatilla County Planning Dept.
11. Hal Phillups- Umatilla County Roadway Dept.
12. Brian Dunn- David Evans and Associates, Inc.

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN**

***Review Access Management Strategy Developed for Area North of the I-84 Interchange***

The TAC revisited the access management strategy developed in the July 12 TAC meeting for Highway 331, for the area extending from the I-84 interchange to the Employee Entrance Road to the Casino. Tom Kuhlman, the Traffic Operations Manager for ODOT Region 5, reviewed the strategy for this area and confirmed that it was in compliance with the Access Management Standards in the Oregon Highway Plan. Also revisited were the proposed highway improvements related to the construction of a non-traversable median. No further changes were proposed for this area.

***Develop Access Management Strategy for Area Around Mission Road***

The TAC developed a strategy for the highway from Mission Road north to the UPRR crossing. In this area, there are numerous driveways to homes on the east side of the highway. Currently, these driveways do not comply with the spacing standards of the OHP. Jim Beard said that the future land use designation for this area is Community Commercial and that driveways would be consolidated or eliminated as commercial development occurs. At this time there are no formal plans for redevelopment of the parcels with homes. Therefore, there will be no specific access changes proposed in the plan.



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The tribe does have formal plans to construct a community grocery store on the northeast corner of the Mission Road intersection. Currently, there is a long continuous driveway accessing the site along the east side of the highway. The tribe plans to relocate the driveway to the northern edge of the property boundary and install a continuous sidewalk with curbing to the Mission Road intersection. It is possible the single driveway would provide joint access to the adjacent property to the north, as it develops over time.

On the west side of the highway, there is a single driveway to a vacant site next to the UPRR tracks (900 feet north of Mission Road). This site is on a parcel of land zoned for a future Community Commercial land use. There is another vacant parcel to the south that is zoned for the same land use, is much larger in size, and extends all the way to the Mission Road intersection. According to the 4 Corners Master Plan, future land uses on this larger parcel could include storage facilities, a riding club/stable yard, and another shopping-type development on the corner. Currently, there is no access to this parcel along the highway. Jim Beard said the tribe would seek to have at least two highway accesses to this parcel. The first would be the existing access to the adjacent parcel to the north which would become a joint access, and the second would be a new access roughly half way between the joint access and Mission Road. This would create a spacing of 450 feet between accesses. The location of the second access, however, would not meet the OHP spacing standard of 700 feet for a District Highway with a posted speed of 55 mph. The tribe feels the average speed of cars in the area is well below 55 mph due to the presence of stop signs on the highway approaches to the Mission Road intersection. Because the second access does not meet current OHP spacing standards, it will not be shown as a planned access in the Access Management Plan of the Corridor Study. The tribe may still wish to pursue a new access at this location as plans for developing this parcel become imminent. This could be done by having a speed study done in the area to determine if the actual posted speed should be lower than 55 mph. If the posted speed were lowered, the required spacing between access points along the highway would decrease as well. The tribe may also apply for a deviation to the spacing standard. Tom Kuhlman stated that if the spacing standards cannot be met, special design features such as median control, a right-in/right-out access, or a deceleration lane may allow for such an access to be permitted. Another alternative would be to provide a new street accessing the parcel at Mission Road. Umatilla County roadway standards would permit a new access roughly 250 to 500 feet from the Highway 331 intersection.

### ***Develop Access Management Strategy South of the I-84 Interchange***

The TAC reached a consensus on an access management strategy for South Market Road, beginning at the eastbound ramps of the I-84 interchange down to Tutuilla Church Road. Hal Phillips stated that Umatilla County, which has jurisdiction over this road, would comply with the OHP access standards for freeway interchange areas. Overall, the TAC agreed a new fully directional intersection would be located 1,320 feet from the I-84 eastbound ramps.

Although it will not be shown in the Access Management Strategy figures, language will be inserted in the plan regarding the possibility of a right-in/right-out access on the west side of South Market Road, approximately 750 feet from the I-84 eastbound ramps. This access may be approved as a result of the removal of the access to the dead end road leading to the waste transfer station (located 475 feet from the interchange). The TAC agreed that the dead end road could be relocated to an internal network of streets leading to both a right-in/right-out access and the fully directional intersection. This realignment would be done as the area zoned for a future industrial land use is developed.

### ***Identify Parallel and Connecting Travel Routes (address all modes of transportation)***

The TAC reviewed a figure that highlighted all the parallel and connecting travel routes proposed to date within the boundaries of the Highway 331 Corridor. This figure was developed to assist the TAC in working towards a "preferred alternative" of transportation system improvements and ensure that the needs of all roadway users (i.e. cars, bikes, peds) are addressed. A series of parallel roads and paths are proposed that would help reduce demand on the highway. Only two new roadway connections are proposed along the highway which meet the OHP access standards.



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August 15, 2000  
Page 3

The TAC supported a new project that would extend a multi-use path from the Tamastslikt Cultural Institute to the Wildhorse Casino. Currently, the entrance road to the Wildhorse Gaming Resort and Tamastslikt Cultural Institute provides the only access between these developments. The road is paved for traffic without any shoulders or sidewalks. Bill Tobey from the Department of Economic Development said there is a need for a path between these activity centers. The need for this project is also driven by the multi-use path being constructed from the Tribal offices to the Tamastslikt Cultural Institute. Once complete, this path is expected to draw many pedestrians and bicyclists to the area.

### CTUIR TRANSPORTATION PLAN

#### ***Transit Needs***

Several representatives from CTUIR presented an application for federal funds to provide "general public" transit services on the Reservation. Funds can be used for operating costs and capital improvements. Funding has been obligated to the CTUIR through FTA Section 5311 Funding. Details of the funds available, the Federal and State Requirements, and steps the CTUIR will need to take to secure these funds are attached to these minutes.

#### ***Bicycle and Pedestrian Needs Along Highway 331 (Wildhorse Casino to Mission Road)***

At the previous meeting in June, the TAC already agreed to include provisions for bicycle and pedestrian improvements along Highway 331, from I-84 to the Employee Entrance Road to the Casino. These improvements would be made in conjunction with a non-traversable landscaped median.

The TAC now supports additional highway improvements that would meet the needs of any bicyclists or pedestrians traveling between the Wildhorse Gaming Resort and Mission Road. Alternative improvements have already been proposed to meet the needs of residents living east of the highway, but not the needs of those living west of the highway.

Two additional projects will be added to the list of prioritized improvements. The first would be to provide sidewalks along both sides of the highway from Mission Road south to the proposed new intersection where the new government offices will be located. *(It was realized after the meeting that if sidewalks are to be constructed along the highway, bike lanes should also be provided. This would effectively separate bikes from cars in the traffic lane.)* The second project would consist of widening the paved shoulders along the highway to a width that would be comfortable to bicyclists and pedestrians. This project would extend all the way to the Casino Entrance Road.

#### ***Other Needs***

Representatives from ODOT mentioned that the State would support ½ mile spacings between signal installations along Highway 331 to maintain efficient traffic progression on the highway. Although the future traffic forecast and operations analysis do not indicate a traffic signal is needed in the future, a traffic signal installation at the Casino Entrance Road will be added to the project list. A signal at the I-84 eastbound ramps, the proposed intersection located 1,320 feet north of the westbound ramps, and the Casino Entrance Road would result in signal spacings close to ½ mile.

## POTENTIAL DEVELOPMENTAL PROJECT CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

### Funding Available

\$56,538 in funding from FTA Section 5311 Funding has been obligated for the Umatilla Tribes for a developmental project.

- Funds can be used for operating expenses or capital expenses associated with a transit service.
- A 50% match is required if funds are used for operating. The total project amount would be \$114,076, with \$56,538 the local match and \$56,538 the federal amount.

A 20% match is required if funds are used for capital. The total project amount would be \$70,672, with \$14,134 local match and \$56,538 the federal amount.

The 5311 program funds "general public" transit services. Service design cannot be exclusive to a particular clientele, such as for elderly and disable persons only. There can be no "space available only" policies. It has to be open to all passengers on an equal basis.

### Federal and State Requirements

Grant recipients must:

- demonstrate legal, fiscal and managerial capacity to receive, manage and account for federal funds;
- be involved in transportation coordination efforts with other transit providers in the area;
- notify the public of intent to make application for a grant, and allow opportunity for the public to comment;
- comply with Civil Rights/ADA requirements on first day of service; all vehicles must be ADA accessible and meet other service requirements; paratransit services are required for fixed route, and deviated or modified fixed route
- meet Drug and Alcohol testing requirements on the first day of service; the service provider must have an approved drug and alcohol policy and testing program (approval done by Public Transit Division). Other federal requirements include (but are not limited to) charter bus and school bus provisions, contracting, equipment management and safety systems, and labor protections.

## Next Steps

The Tribal Government should notify Public Transit Division if it wants to proceed with a project.

- Fill out an application for funding (new applications for 2000 will be out soon).
- Meet with Public Transit Division staff to discuss federal requirements and project implementation,

PTD 3/15/00

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN  
&  
CTUIR TRANSPORTATION PLAN**

**TAC MEETING**

**1:00 p.m. - 3:00 p.m.  
Wednesday, August 16, 2000  
Tribal Planning Office  
Umatilla Indian Reservation, Oregon**

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**AGENDA**

**CTUIR TRANSPORTATION SYSTEM PLAN**

- I. Bicycle and Pedestrian Needs Along Highway 331  
Across the I-84 Overpass  
South Market Road**

**HIGHWAY 331 CORRIDOR REFINEMENT PLAN**

- I. Adoption of the Corridor Plan**
- Lay out process for adoption by CTUIR.  
Lay out process for adoption by Oregon Transportation Council.
  - Will Department of Land Conservation and Development (DLCD) be involved?  
Do these documents need to be linked by a Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA)?
- II. Develop Corridor Plan Implementation Strategies**
- Purpose is to link State, CTUIR, and County plans.  
Identify guidelines to coordinate with CTUIR and Umatilla County TSP's and Highway 11 Corridor Plan
  - Prepare amendments to existing CTUIR and County policies and ordinances to implement the corridor plan



DAVID EVANS AND ASSOCIATES, INC.

DEA MEMORANDUM

2828 SW Corbett Avenue

TO: All TAC Members

Portland, Oregon 97201

FROM: Brian Dunn, P.E.

DATE: August 18, 2000

Tel: 503.223.6663

SUBJECT: **HIGHWAY 331 CORRIDOR REFINEMENT PLAN / CTUIR TSP  
AUGUST 16 TAC MEETING MINUTES**

Fax: 503.223.2701

PROJ. #: ODOT0000-0331.02/ CTUI0000-0001

COPIES: CC:

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## THOSE PRESENT AT MEETING:

1. Teresa Penninger- ODOT Region 5
2. Jonathon David- ODOT Region 5
3. Tom Shuman- BIA Warm Springs Area
4. Jim Beard- CTUIR Tribal Planning Office
5. Hal Phillups- Umatilla County Roadway Dept.
6. Brian Dunn- David Evans and Associates, Inc.

## CTUIR TRANSPORTATION PLAN

### ***Bicycle and Pedestrian Needs Along Highway 331 (South Market Road and I-84 Overpass)***

Jim Beard outlined the tribe's future plans to develop homes on an 80-acre site along the west side of South Market Road, near Tutuilla Church Road. He said the tribe envisions a separated multi-use path along the west side of South Market Road up to the I-84 interchange. This path would handle bicyclists and pedestrians traveling to and from Highway 331 and the rest of the Mission Community area to the north. Jim said this would be the best option since the tribe owns the land adjacent to South Market Road and could construct a pathway as the land develops. Also, assistance from the County would not be needed.

Brian Dunn stated that the tribe would need to address how this path would connect into the I-84 overpass. Currently, there are 6- to 8-foot shoulders along both sides of the overpass. These shoulders are wide enough for bike and ped travel. One connectivity issue would be how to get bicyclists and pedestrians heading north on the path to cross over onto the east side of South Market Road in a safe and effective manner. It was decided that connectivity issues such as this would be addressed at a later time.

Another option was considered at the meeting for bike/ped improvements along South Market Road. This was to widen the shoulders along both sides of the road with pavement. Hal Phillups said additional right-of-way might be required to do this near the interchange. Since the tribe feels a multi-use path would be the best alternative, this option was dropped.

## HIGHWAY 331 CORRIDOR REFINEMENT PLAN

### ***Adoption of the Corridor Plan***

The CTUIR plans to adopt the Highway 331 Corridor Refinement Plan. Jim said he would like specific parts of the access management plan (policies, access management strategy) to also be included as a chapter in the CTUIR TSP, which the tribe also plans to adopt.



## DAVID EVANS AND ASSOCIATES, INC.

All TAC Members  
August 18, 2000  
Page 2

Teresa Penninger said the Corridor Plan, once complete, will be taken directly to the Oregon Transportation Council (OTC) for adoption around the time of adoption by the CTUIR. This plan will be used by the State as a public facility plan.

Teresa stated that local jurisdictions usually enter into an agreement with ODOT, commonly called a "resolution of support", to effectively implement a Corridor Plan. However, since the tribe is planning to adopt the Corridor Plan, a "resolution of support" would not be necessary. Adoption would be a guarantee of support.

The issue of involving DLCD was raised and whether the Corridor Plan or TSP would be reviewed by this agency or not. Jim said that since the tribe governs land use decisions on the Reservation and that the CTUIR is a sovereign nation, the tribe doesn't see any reason for involving DLCD. ODOT supported this decision.

It is unclear at this time what changes, if any, would be needed to the CTUIR Comprehensive Plan and other policies and ordinances to implement the Corridor Plan. It may be that adoption alone by the CTUIR would be enough. Teresa said that local jurisdictions typically change their policies and ordinances to implement Corridor Plans and TSP's regarding things like roadways standards, street spacing requirements, notification to other interested parties when making land use decisions and when projects will occur.

In Patty Perry's absence, Hal Phillips stated that the County would pursue co-adoption of both the CTUIR TSP and Highway 331 Corridor Plan. This is needed since both plans address improvements along county roads. Needed changes to county policies and ordinances are still unclear at this time.

### **NEXT STEPS TOWARD FINALIZING THE TSP AND CORRIDOR PLAN**

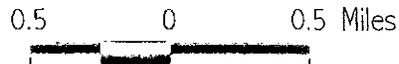
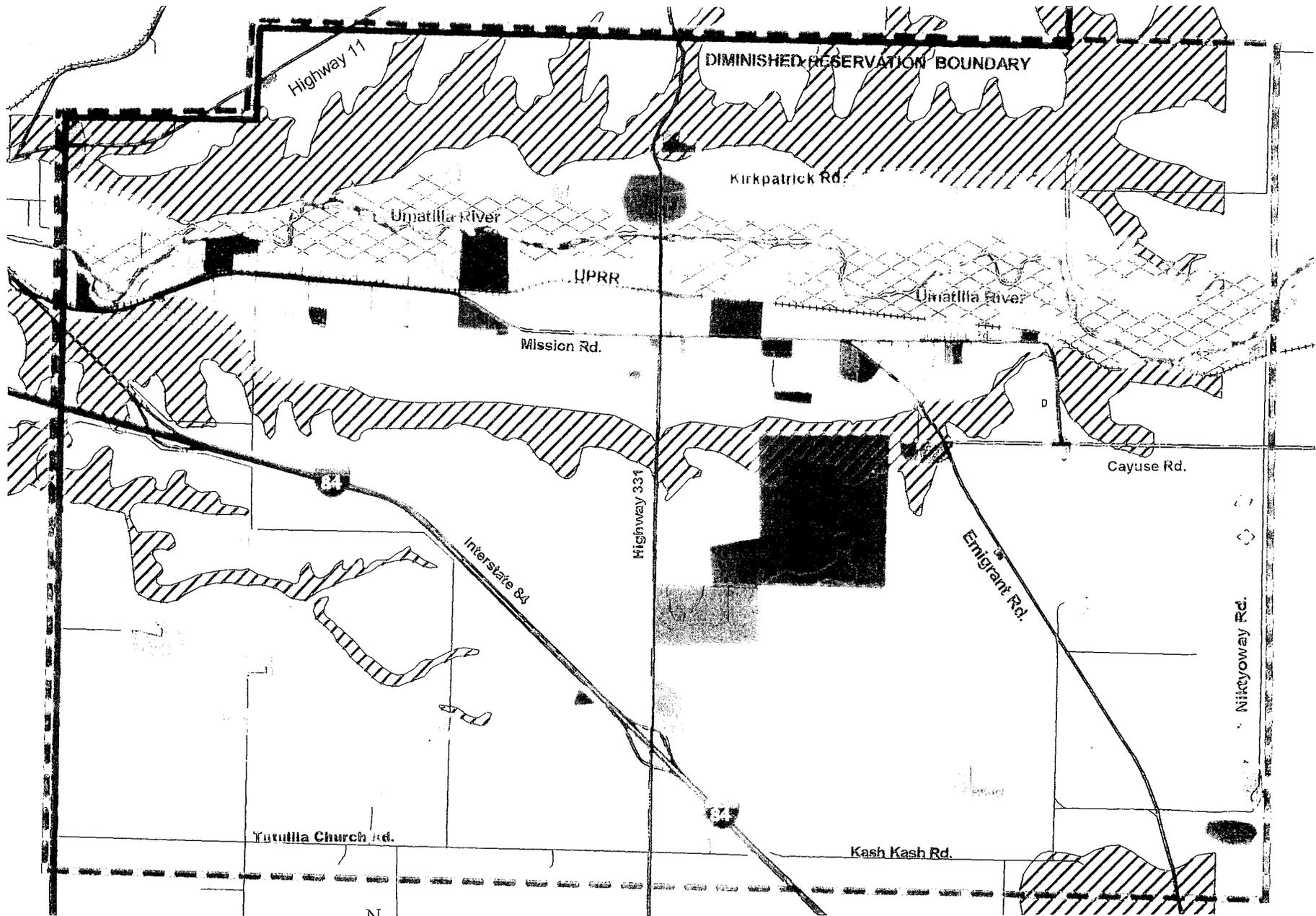
The following steps will be taken over the next month (08/17-09/14):

- Submit draft hardcopy of CTUIR TSP to Jim Beard for preliminary review.  
Once reviewed, send a list of prioritized projects, with maps, and summary of all projects to Tom Shuman.  
Submit draft copies of CTUIR TSP to remaining TAC members for review (ODOT and County)

After comments are received by all TAC members, work will begin on the production of a draft Corridor Plan, which will encompass a lot of what is contained in the tribe's transportation system plan. After the TAC has reviewed this document, two meetings will be set up to present both plans. One meeting will be with the CTUIR Natural Resources Commission and the other will be a public presentation.

**GENERALIZED LAND USES AND LAND OWNERSHIP**  
*(MISSION COMMUNITY PLAN)*

# GENERALIZED LAND USE - MISSION COMMUNITY PLAN

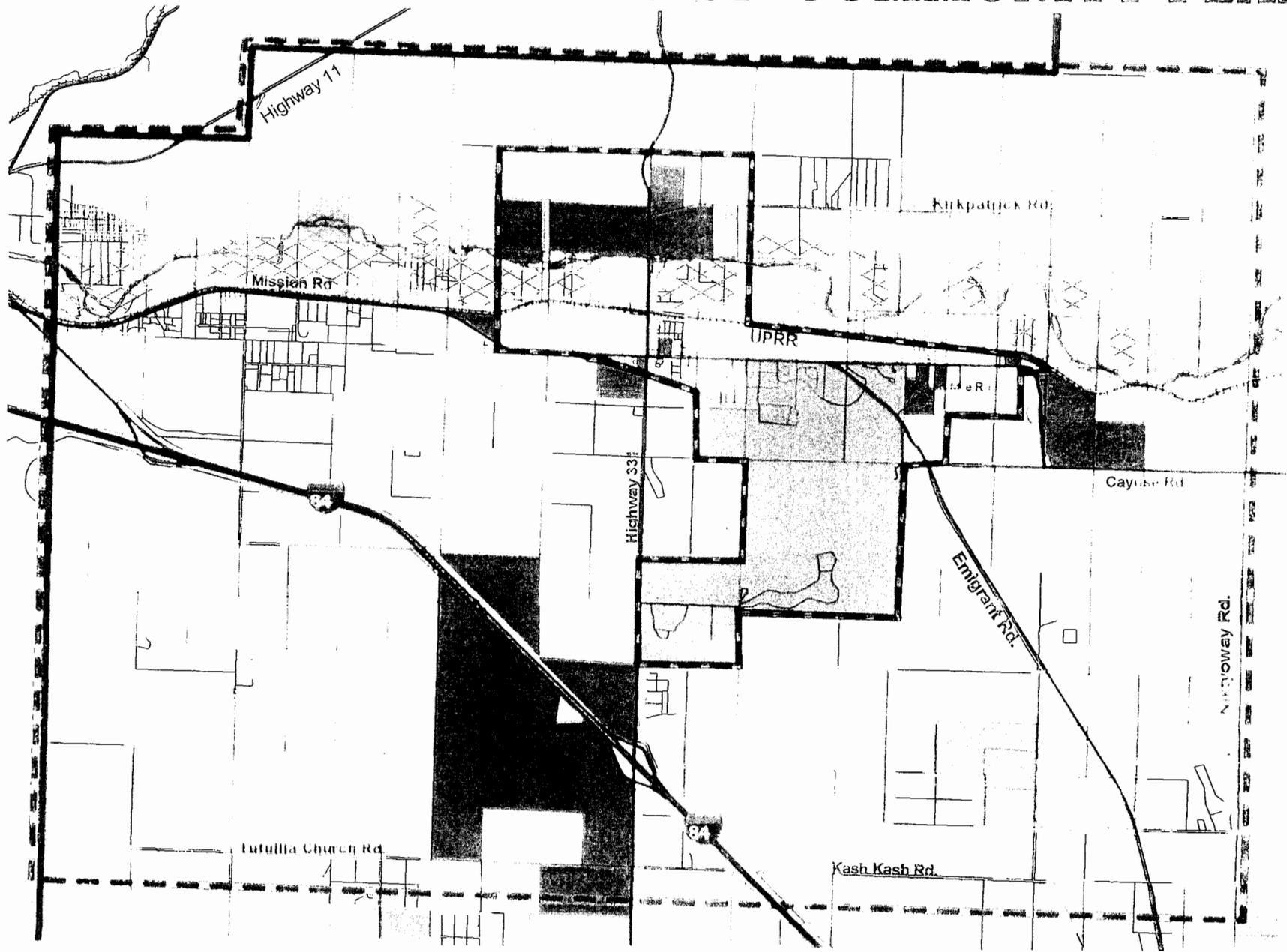


-  UMATILLA RIVER FLOODPLAIN
-  MISSION COMMUNITY PLANNING AREA BOUNDARY
-  STEEP SLOPES (10% +)
-  DIMINISHED RESERVATION BOUNDARY

- LAND USE DESIGNATIONS**
-  AGRICULTURE/UNDEVELOPED
  -  COMMERCIAL
  -  INDUSTRIAL
  -  SEMI-PUBLIC FACILITIES
  -  RESIDENTIAL - MEDIUM DENSITY
  -  RESIDENTIAL - LOW DENSITY
  -  RESIDENTIAL - SCATTERED SITE
  -  TRIBAL/GOVT./PUBLIC FACILITIES



# OWNERSHIP MAP -- MISSION COMMUNITY PLAN

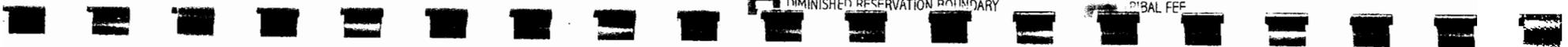


UMATILLA RIVER FLOODPLAIN

-  TRIBAL WATER/SEWER SERVICE BOUNDARY
-  MISSION COMMUNITY PLANNING AREA BOUNDARY
-  DIMINISHED RESERVATION BOUNDARY

OWNERSHIP DESIGNATIONS

-  LOTMENT
-  DEEDED
-  RUST/TRIBAL ALLOTMENT
-  TRIBAL FEE



**EXISTING ACCESS INVENTORY FOR HIGHWAY 331**

**HWY 331 EXISTING ACCESS INVENTORY**

Access Identifier Number	West Side/ East Side	Highway Milepost	Driveway	Road	Jurisdiction	Driveway Use or Road Name	Distance to Previous Access (ft)	Distance to Next Access (ft)	Meets OHP Spacing Standards
1	West	0.00		X	State	HWY 11		1,267	Y
2	West	0.24	X		None <sup>1</sup>	Agriculture	1,267	1,426	Y
3	West	0.51	X		None <sup>1</sup>	Agriculture	1,426	1,267	Y
4	West	0.75	X		None <sup>1</sup>	Agriculture	1,267	1,426	Y
5	West	1.02	X		None <sup>1</sup>	Agriculture	1,426	3,274	Y
6	West	1.64	X		Private	House	3,274	634	N
7	West	1.76	X		Private	House	634	422	N
8	West	1.84	X		Private	House	422	1,003	N
		2.02				Umatilla River			
9	West	2.03	X		Private	House	1,003	264	N
10	West	2.08	X		Private	House	264	211	N
11	West	2.12	X		Private	House	211	634	N
12	West	2.24	X		Private	House	634	106	N
13	West	2.26	X		Private	House	106	53	N
14	West	2.27		X	Private	Showaway Lane	53	264	N
		2.29				Railroad Crossing			
15	West	2.32	X		Private	Open industrial area	264	1,003	N
16	West	2.51		X	County	Mission Road	1,003	158	N
17	West	2.54	X		Private	Abandoned House/ Rest Stop	158	1,003	N
18	West	2.73	X		Private	House	1,003	1,848	Y
19	West	3.08	X		None <sup>1</sup>	Agriculture	1,848	1,637	Y
20	West	3.39	X		None <sup>1</sup>	Agriculture	1,637	3,062	Y
21	West	3.97	X		Private	Open Agricultural/ Industrial area	3,062	264	N
22	West	4.02		X	Public Use <sup>2</sup>	Dirt Road (with Public ROW)	264	1,637	N
23	West	4.33	X		Private	Abandoned House	1,637	528	N
24	West	4.43		X	State	I-84 WB Ramps	528	950	N
25	West	4.61		X	State	I-84 EB Ramps	950	475	N
26	West	4.70		X	State	Dead End Road to Transfer Station	475	1,742	N
27	West	5.03		X	County	Tutuilla Church Road	1,742		Y
28	East	5.03		X	County	Tutuilla Church Road		2,218	Y
29	East	4.61		X	State	I-84 EB Ramps	2,218	950	Y
30	East	4.43		X	State	I-84 WB Ramps	950	106	N
31	East	4.41		X	County	Kash-Kash Road	106	422	N
32	East	4.33	X		Private	Texaco Gas Station/ Truck Stop	422	53	N
33	East	4.32	X		Private	Texaco Gas Station/ Truck Stop	53	158	N
34	East	4.29	X		Private	Texaco Gas Station/ Truck Stop	158	264	N
35	East	4.24	X		Private	Cody's Restaurant	264	211	N
36	East	4.20	X		Private	Cody's Restaurant/ Truck Parking Lot	211	317	N
37	East	4.14	X		Private	Truck Parking Lot	317	686	N
38	East	4.01		X	Private	Wild Horse Employee Entrance Road	686	1,478	Y
39	East	3.73		X	CTUIR	Wild Horse Resort Main Entrance Road	1,478	1,162	Y
40	East	3.51	X		None <sup>1</sup>	Agriculture	1,162	634	N
41	East	3.39	X		None <sup>1</sup>	Agriculture	634	1,478	N
42	East	3.11	X		None <sup>1</sup>	Agriculture	1,478	898	Y
43	East	2.94	X		None <sup>1</sup>	Agriculture	898	950	Y
44	East	2.76	X		None <sup>1</sup>	Agriculture	950	1,162	Y
45	East	2.54	X		Private	House	1,162	158	N
46	East	2.51		X	County	Mission Road	158	106	N
47	East	2.49	X		Private	Vacant Commercial Site	106	158	N
48	East	2.46	X		Private	Vacant Commercial Site	158	106	N
49	East	2.44	X		Private	House	106	106	N
50	East	2.42	X		Private	House	106	106	N
51	East	2.40	X		Private	House	106	53	N
52	East	2.39	X		Private	House	53	158	N
53	East	2.36	X		Private	House	158	53	N
54	East	2.35	X		Private	House	53	106	N
55	East	2.33	X		Private	House	106	106	N
56	East	2.31	X		Private	Railroad Industrial Site	106	158	N
		2.29				Railroad Crossing			
57	East	2.28	X		Private	House	158	264	N
58	East	2.23	X		Private	House	264	158	N
59	East	2.20	X		Private	House	158	211	N
60	East	2.16		X	County	Marlowe Road	211	1,531	N
		2.02				Umatilla River			
61	East	1.87	X		Private	House	1,531	264	N
62	East	1.82		X	County	Kirkpatrick Road	264	845	N
63	East	1.66	X		None <sup>1</sup>	Agricultural	845	898	Y
64	East	1.49	X		Private	House	898	2,640	Y
65	East	0.99	X		None <sup>1</sup>	Agriculture	2,640	1,267	Y
66	East	0.75	X		None <sup>1</sup>	Agriculture	1,267	1,267	Y
67	East	0.51	X		None <sup>1</sup>	Agriculture	1,267	1,426	Y
68	East	0.24	X		None <sup>1</sup>	Agriculture	1,426	1,267	Y
69	East	0.00		X	State	HWY 11/Duff Road	1,267		Y

<b>Summary:</b>	
Total Access Points	69
Total Meeting OHP Spacing Standards	23 (33%)

Notes: 1- Access to adjacent property may not be legal.  
 2- Public use road with no right-of-way or jurisdictional owner





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FORKLAND, OR. 97201-4830 (503) 223-6663



(Scale: 1" = 500')

ACCESS LEGEND:

- Existing Intersection
- Existing Driveway Approach
- Existing Road
- Milepoint Marker
- Right-of-Way Line
- Reservation of Access Points
- Access Control Line
- Access Identifier Number (See Inventory Spreadsheet)
- Area Where Existing Accesses Do Not Comply With Oregon Highway Plan
- Potential Access Area

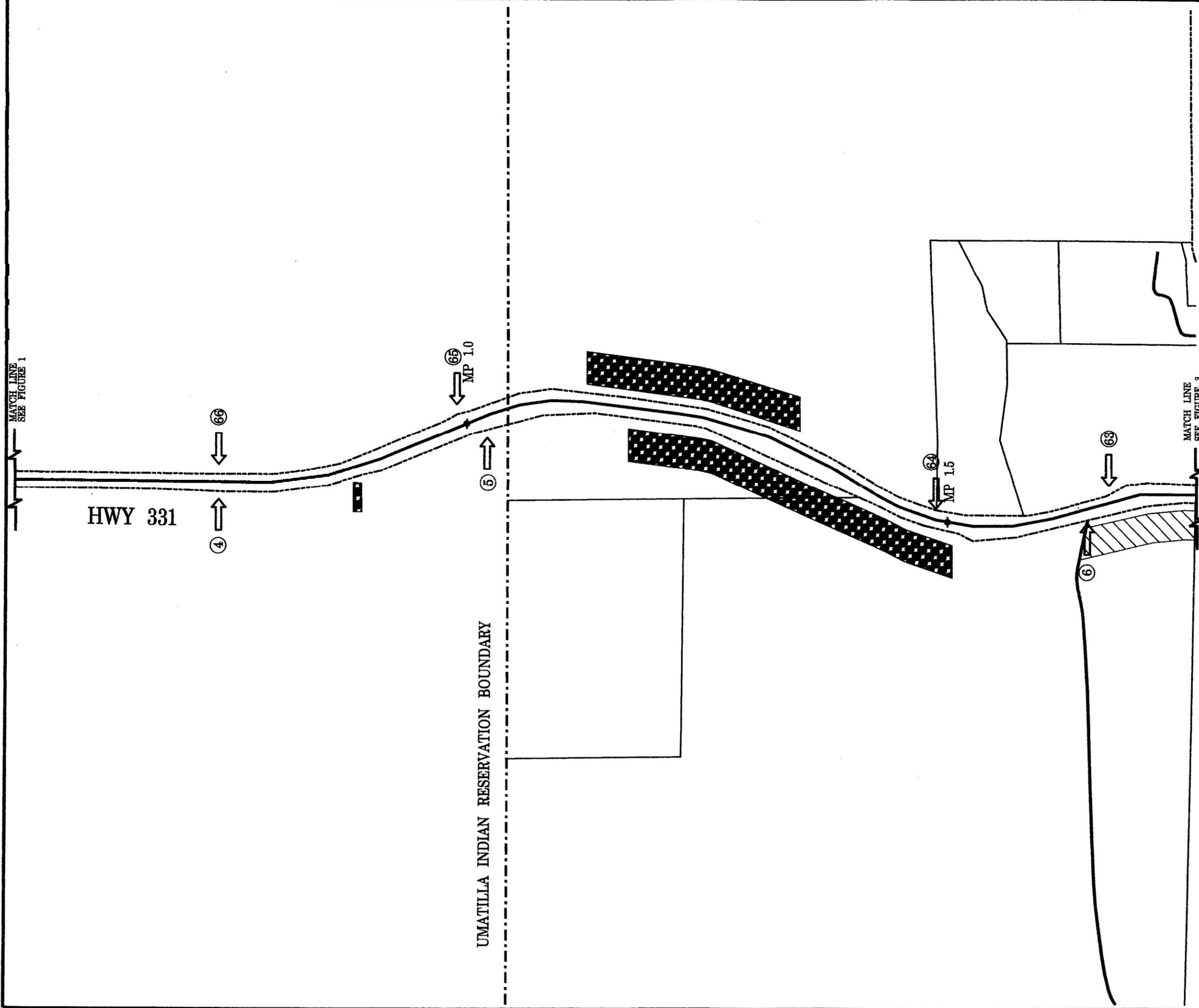


FIGURE 2

Existing Accesses along  
the Highway 331 Corridor  
(Segment 2 of 5)

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(Scale: 1" = 500')

**ACCESS LEGEND:**

-  Existing Intersection
-  Existing Driveway Approach
-  Existing Road
-  Milepoint Marker
-  Right-of-Way Line
-  Reservation of Access Points
-  Access Control Line
-  Access Identifier Number (See Inventory Spreadsheet)
-  Area Where Existing Accesses Do Not Comply With Oregon Highway Plan
-  Potential Access Area



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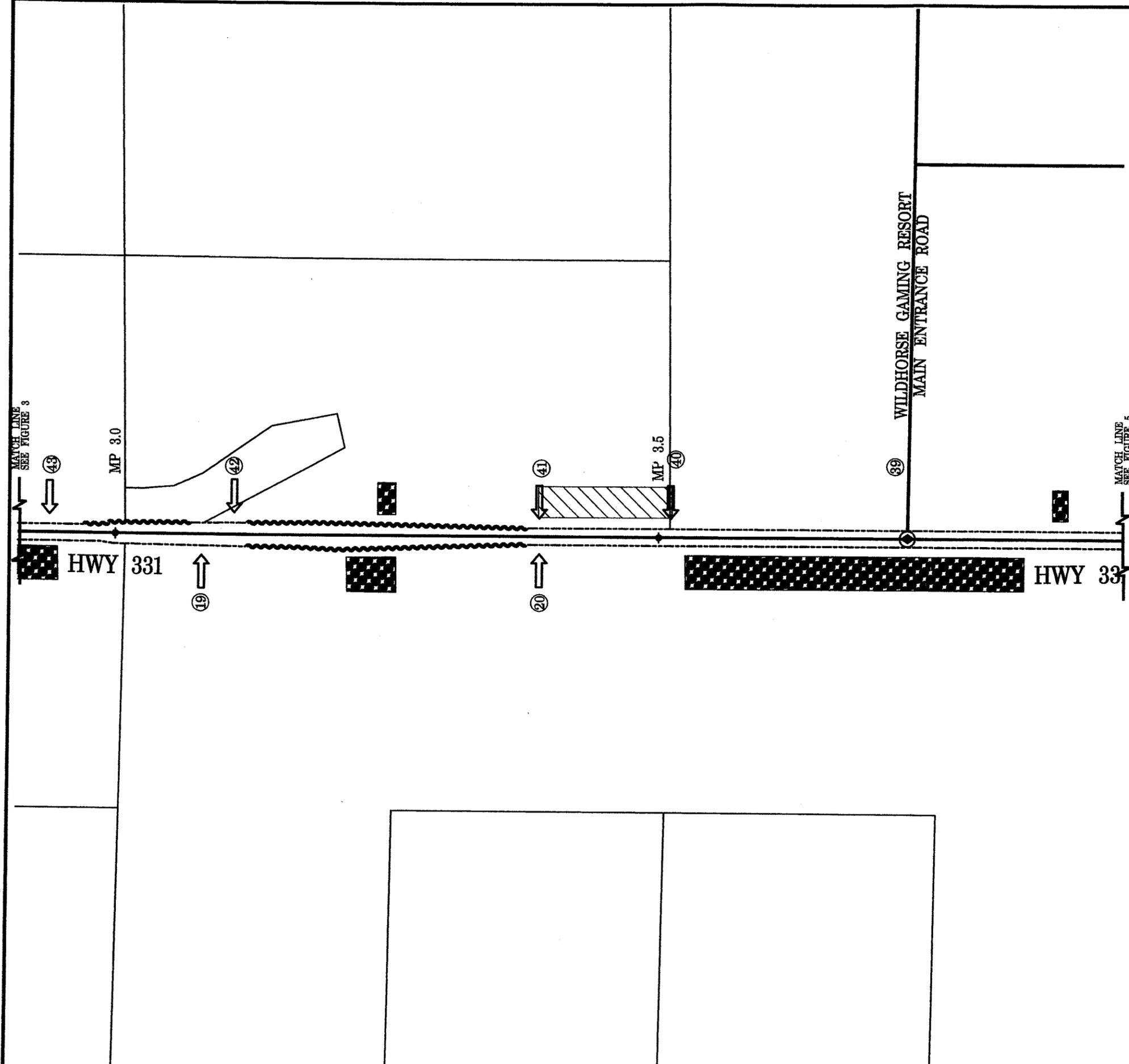
**FIGURE 3**  
**Existing Accesses along the Highway 331 Corridor (Segment 3 of 5)**



(Scale: 1" = 500')

**ACCESS LEGEND:**

-  Existing Intersection
-  Existing Driveway Approach
-  Existing Road
-  Milepoint Marker
-  Right-of-Way Line
-  Reservation of Access Points
-  Access Control Line
-  Access Identifier Number  
(See Inventory Spreadsheet)
-  Area Where Existing Accesses Do Not Comply With Oregon Highway Plan
-  Potential Access Area



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**FIGURE 4**

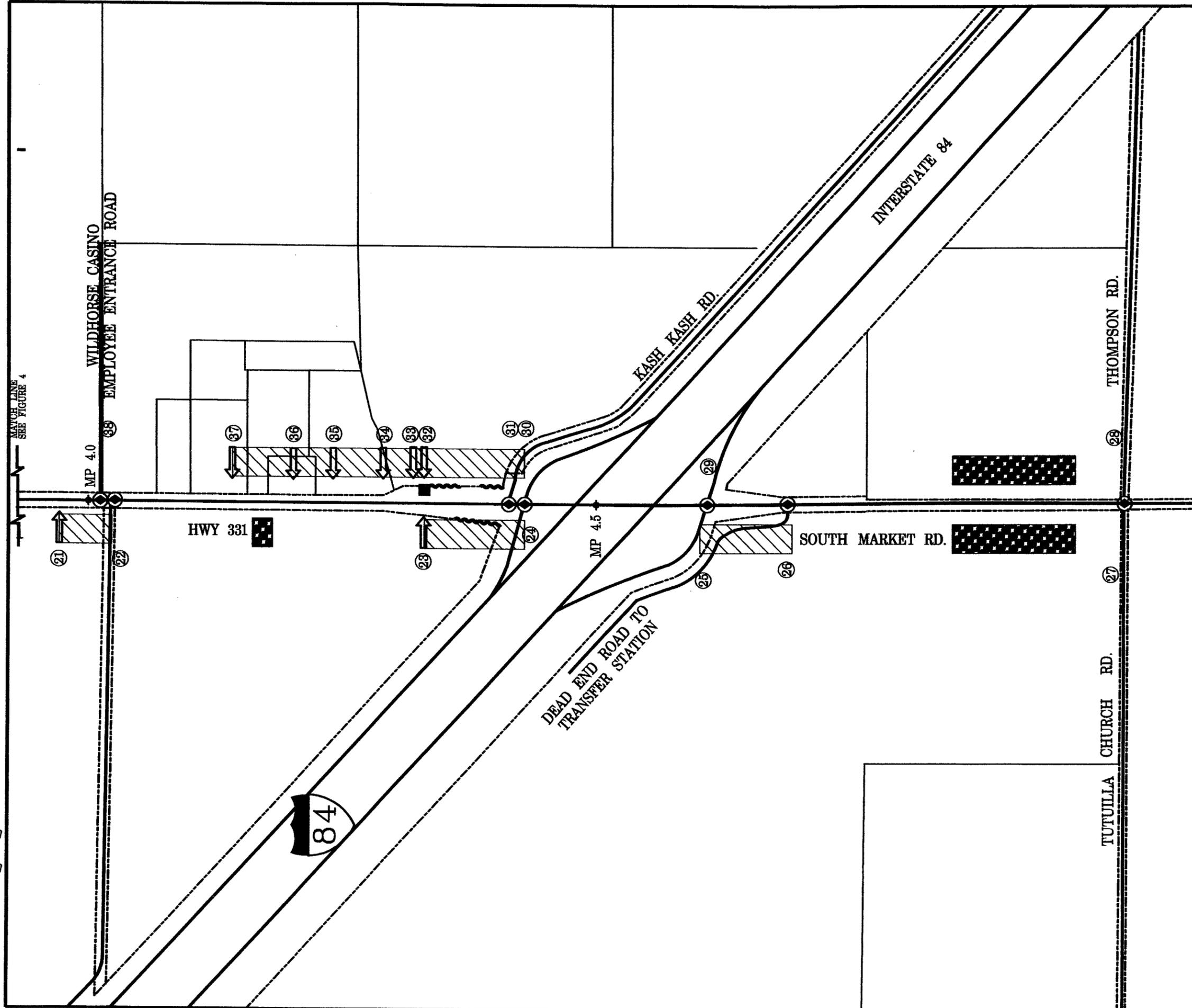
**Existing Accesses along  
the Highway 331 Corridor  
(Segment 4 of 5)**



(Scale: 1" = 500')

**ACCESS LEGEND:**

-  Existing Intersection
-  Existing Driveway Approach
-  Existing Road
-  Milepoint Marker
-  Right-of-Way Line
-  Reservation of Access Points
-  Access Control Line
-  Access Identifier Number  
(See Inventory Spreadsheet)
-  Area Where Existing Accesses Do Not Comply With Oregon Highway Plan
-  Potential Access Area



**FIGURE 5**  
**Existing Accesses along**  
**the Highway 331 Corridor**  
**(Segment 5 of 5)**

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**LEVEL OF SERVICE CRITERIA AND CALCULATIONS FOR  
UNSIGNALIZED AND SIGNALIZED INTERSECTIONS**

## DESCRIPTION OF LEVEL OF SERVICE METHODOLOGY

### LEVEL OF SERVICE CONCEPT

Various intersections within the CTUIR study area were selected and analyzed for their operational character based on the traffic volumes found to occur during the PM peak hour for existing and future conditions. Intersections to be signalized in the future are evaluated based on the overall average delay to all vehicles entering the intersection and the volume-to-capacity ratio. The unsignalized intersections are evaluated based on the availability of adequate gaps in the main street flow of traffic to safely accommodate the most critical movement from the side street approach.

#### *Signalized Intersections*

Regarding signalized intersections, the concept of level-of-service is a quantitative measure of the ratio between the existing or projected volumes and the capacity of the roadway at a given location. This ratio is known as Volume to Capacity (v/c). The v/c ratios are broken down further into the six LOS descriptions ranging for A to F, for operations identification purposes. The six LOS grades are described qualitatively for signalized intersections in Table 1 below. Additionally, Table 2 identifies the relationship between level of service and the v/c ratio. Under these criteria, a LOS D is generally considered to represent the minimum acceptable design standard.

#### *Unsignalized Intersections*

The operational characteristics of selected unsignalized intersections throughout the study area were assessed using ODOT's UNSIG-10 program. This program calculates delay and level-of-service for the critical movements of an intersection, based on the reserve capacity. Unsignalized intersections include Two-Way Stop-Controlled (TWSC) and All-Way Stop Controlled (AWSC) intersections. A qualitative description of the various service levels associated with an unsignalized intersection is presented in Table 3. Using the criteria in this table, LOS D is generally considered to represent the minimum acceptable design standard.

It should be noted that the LOS criteria for unsignalized intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, there are a number of driver behavior considerations that combine to make delays at signalized intersections less onerous than at unsignalized intersections.

For example, drivers at signalized intersections are able to relax during the red interval, while drivers on the minor street approaches to TWSC intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections than signalized intersections. For these reasons, it is considered that the total delay threshold for any given LOS is less for an unsignalized intersection than for a signalized intersection. While overall intersection LOS is calculated for AWSC intersections, LOS is only calculated for the minor approaches and the major street left turn movements at TWSC intersections. No delay is assumed for the major street through movements. For TWSC intersections, the overall intersection LOS is defined by the movement having the worst LOS (typically a minor street left turn).

**TABLE 1  
LEVEL-OF-SERVICE DESCRIPTIONS FOR SIGNALIZED INTERSECTIONS**

<b>Level of Service</b>	<b>Traffic Flow</b>	<b>Comments</b>	<b>Maneuverability</b>
A Desirable	Free	Traffic flows freely with no delays.	Drivers can maneuver easily and find freedom in operation
B Desirable	Stable	Traffic still flows smoothly with few delays.	Some drivers feel somewhat restricted within groups of vehicles.
C Desirable	Stable	Traffic generally flows smoothly but occasionally vehicles may be delayed through one signal cycle. Desired urban area design level.	Backups may develop behind turning vehicles. Most drivers feel somewhat restricted.
D Acceptable	Approaching Unstable	Traffic delays may be more than one signal cycle during peak hours but excessive back-ups do not occur. Considered acceptable urban area design level.	Maneuverability is limited during short peak periods due to temporary backups.
E Unsatisfactory	Unstable	Delays may be great and up to several signal cycles. Short periods of this level may be tolerated during peak hours in lieu of the cost and disruption of providing a higher level of service.	There are typically long queues of vehicles waiting upstream of the intersections.
F Unsatisfactory	Forced	Excessive delay causes reduced capacity. Always considered unsatisfactory. May be tolerated in recreational areas where occurrence is rare.	Traffic is backed up from other locations and may restrict or prevent movement of vehicles at the intersection.

*Source: ODOT, Transportation Development Branch, SIGCAP2 Users Manual, Page B-3.*

**TABLE 2  
LEVEL-OF-SERVICE CRITERIA  
FOR A SIGNALIZED INTERSECTION**

Level of Service	V/C Ratio
A	0.00-0.48
B	0.49-0.59
C	0.60-0.69
C-D	0.70-0.73
D	0.74-0.83
D-E	0.84-0.87
E	0.88-0.97
E-F	0.98-0.99
F	>1.00

*Source: ODOT, Transportation Development Branch,  
SIGCAP2 Users Manual, page B-2*

**TABLE 3  
LEVEL-OF-SERVICE DESCRIPTIONS  
FOR AN UNSIGNALIZED INTERSECTION**

Level of Service	Reserve Capacity (vehicles/hour)	Delay Range (seconds/vehicle)
A	Greater than 400	<ul style="list-style-type: none"> <li>• Nearly all drivers find freedom of operation.</li> <li>• Very seldom is there more than one vehicle in the queue.</li> </ul>
B	300-399	<p>Some drivers begin to consider the delay an inconvenience.</p> <ul style="list-style-type: none"> <li>• Occasionally there is more than one vehicle in the queue</li> </ul>
C	200-299	<ul style="list-style-type: none"> <li>• Most drivers feel restricted, but not objectionably so</li> <li>• Many times there is more than one vehicle in the queue.</li> </ul>
D	100-199	<ul style="list-style-type: none"> <li>• Drivers feel quite restricted</li> <li>• Often there is more than one vehicle in the queue</li> </ul>
E	1-99	<ul style="list-style-type: none"> <li>• Represents a condition in which the demand is near or equal to the probable maximum number of vehicles that can be accommodated by the movement.</li> <li>• Drivers find the delays to be approaching intolerable levels</li> <li>• There is almost always more than one vehicle in the queue.</li> </ul>
F	Less than 0	<ul style="list-style-type: none"> <li>• Forced flow.</li> <li>• Represents an intersection failure condition that is caused by geometric and/or operational constraints external to the intersection.</li> </ul>

**EXISTING INTERSECTION OPERATIONS ANALYSIS  
WORKSHEETS**

# Existing Conditions

## UNSIGNALIZED - T - INTERSECTION CAPACITY CALCULATION FORM

2/22/2000 11:22:44

FILE NAME: 2HW 331 @ 11

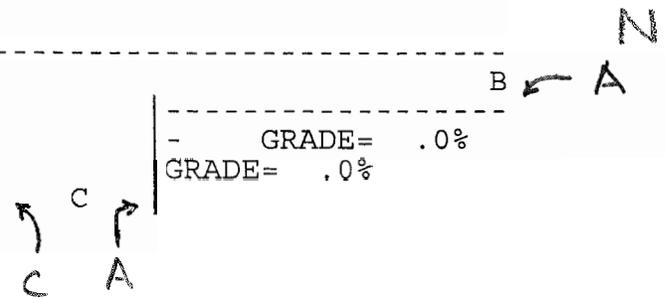
CITY:  
 INTERSECTION: HWY 331 @ OR 11  
 ALTERNATE:  
 COUNT: 2000 PM PEAK HOUR  
 LOCATION PLAN:

ANALYST: RSLP  
 METRO SIZE: LESS THAN 20,000  
 TYPE OF CONTROL: STOP

APPROACH CODES ARE

LANE	1	2	3	4	
A	4				A
B	2	3			
C	1	3			

GRADE= .0%



SPEED: 55 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO

APPROACH	A		B		C	
MOVE VOLUME	AT	AR	BL	BT	CL	CR
PCH LANES	348	3	39	261	1	58
			43		1	64
	1			2		2

STEP 1 RIGHT TURN FROM C

CONFLICTING FLOWS = MH =	CR
CRITICAL GAP = TG =	350. VPH
POTENTIAL CAPACITY = M1 =	6.5 SECS
	593. PCH

SHARED LANE - SEE STEP 3

NO SHARED LANE DEMAND =	64 PCH
AVAILABLE RESERVE =	529. PCH
DELAY & LOS =	A

STEP 2 LEFT TURN FROM B

CONFLICTING FLOWS = MH =	BL
CRITICAL GAP = TG =	351. VPH
POTENTIAL CAPACITY = M2 =	5.5 SECS
DEMAND = BL =	738. PCH
CAPACITY USED =	43 PCH
IMPEDANCE FACTOR = P2 =	5.83 %
AVAILABLE RESERVE =	.961
DELAY & LOS =	695. PCH
	A

STEP 3 LEFT TURN FROM C

CONFLICTING FLOWS = MH =	CL
CRITICAL GAP = TG =	650. VPH
POTENTIAL CAPACITY = M3 =	7.5 SECS
ADJUSTING FOR IMPEDANCE = M3 =	299. PCH
	287. PCH

STEP 3 CONTINUED

CL

NO SHARED LANE DEMAND =	1	PCH
AVAILABLE RESERVE =	286.	PCH
DELAY & LOS =	C	
SHARED LANE DEMAND =	0	PCH
POTENTIAL CAPACITY = M13 =	0.	PCH
AVAILABLE RESERVE =	0.	PCH
DELAY & LOS =	N/A	

-----  
LOS C VOLUMES:  
VEHICLES PER HOUR

LEG C  
117.  
-----

VER 03/93

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM

4-WAY INTERSECTION

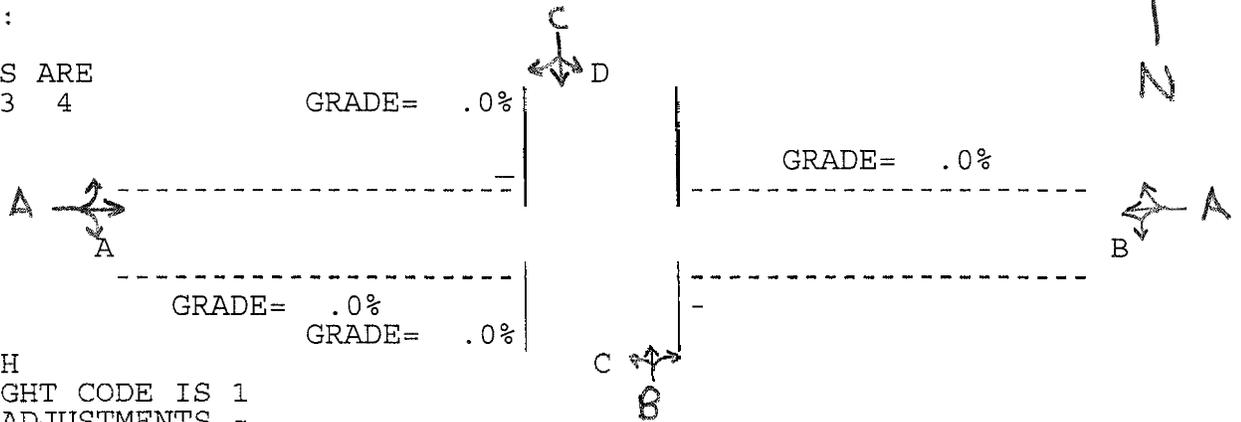
2/22/2000 11:26:18

FILE NAME: 2HW331@MI

CITY:  
 INTERSECTION: HWY 331 @ Mission RD  
 ALTERNATE:  
 COUNT: 2000 PM PEAK HOUR  
 LOCATION PLAN:

ANALYST: RSLP  
 METRO SIZE: LESS THAN 20,000  
 TYPE OF CONTROL: STOP

APPROACH CODES ARE  
 LANE 1 2 3 4  
 A 5  
 B 5  
 C 5  
 D 5



SPEED: 40 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO

APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	31	122	9	99	204	53	16	74	80	15	69	20
PCH	34			109			18	81	88	17	76	22
LANES		1			1			1			1	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	127.	231. VPH
CRITICAL GAP = TG =	6.0	6.0 SECS
POTENTIAL CAPACITY = M1 =	869.	763. PCH
DEMAND =	88	22 PCH
CAPACITY USED =	10.128	2.882 %
IMPEDANCE FACTOR =	.930	.981

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE = 0. PCH  
 DELAY & LOS = N/A N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	131.	257. VPH
CRITICAL GAP = TG =	5.5	5.5 SECS
POTENTIAL CAPACITY = M2 =	954.	824. PCH
DEMAND =	109	34 PCH
CAPACITY USED =	11.43	4.12 %
IMPEDANCE FACTOR =	.921	.973
AVAILABLE RESERVE =	845.	790. PCH
DELAY & LOS =	A	A

-----

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	514.	492. VPH
	CRITICAL GAP = TG =	7.0	7.0 SECS
	POTENTIAL CAPACITY = MN3 =	418.	432. PCH
	IMPEDANCE ADJUSTMENT = M3 =	374.	387. PCH
	DEMAND =	81	76 PCH
	CAPACITY USED =	19.38	17.59 %
	IMPEDANCE FACTOR = P3 =	.860	.874

NO SHARED LANE		
AVAILABLE RESERVE=	0.	0. PCH
DELAY & LOS =	N/A	N/A

SHARED LANE WITH LEFT TURN - SEE STEP 4

SHARED LANE DEMAND =	0	0 PCH
POTENTIAL CAPACITY = M13 =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

-----

STEP 4 - LEFT TURN FROM C/D	CL	DL
CONFLICTING FLOWS = MH =	603.	646. VPH
CRITICAL GAP = TG =	6.5	6.5 SECS
POTENTIAL CAPACITY = MN =	416.	390. PCH
ADJUST FOR IMPEDANCE:	319.	279. PCH

NO SHARED LANE DEMAND =	0	0 PCH
AVAILABLE RESERVE =	0	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT & THRU		
SHARED LANE DEMAND =	0	0 PCH
CAPACITY OF SHARED LANE =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT, THRU, & RIGHT		
SHARED LANE DEMAND =	187	115 PCH
CAPACITY OF SHARED LANE =	500.	402. PCH
AVAILABLE RESERVE =	313.	287. PCH
DELAY & LOS =	B	C

-----

LOS C VOLUMES:  
VEHICLES PER HOUR

FOR LEG C  
411.

FOR LEG D  
412.

-----

UNSIGNALIZED - T - INTERSECTION CAPACITY CALCULATION FORM

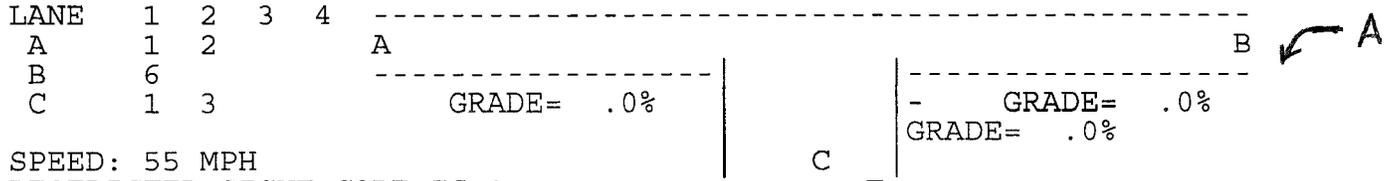
2/22/2000 11:29: 5

FILE NAME: 2Hw 331 @ GR

CITY: ANALYST: RSLP  
 INTERSECTION: HWY 331 @ Wild Horse Gaming Resort  
 ALTERNATE: METRO SIZE: LESS THAN 20,000  
 COUNT: 2000 PM PEAK HOUR TYPE OF CONTROL: STOP  
 LOCATION PLAN:



APPROACH CODES ARE



SPEED: 55 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO

APPROACH	A		B		C	
MOVE	AT	AR	BL	BT	CL	CR
VOLUME	122	66	22	169	76	41
PCH			24		84	45
LANES		2		1		2

STEP 1 RIGHT TURN FROM C CR  
 CONFLICTING FLOWS = MH = 122. VPH  
 CRITICAL GAP = TG = 6.5 SECS  
 POTENTIAL CAPACITY = M1 = 797. PCH

SHARED LANE - SEE STEP 3

NO SHARED LANE DEMAND = 45 PCH  
 AVAILABLE RESERVE = 752. PCH  
 DELAY & LOS = A

STEP 2 LEFT TURN FROM B BL  
 CONFLICTING FLOWS = MH = 188. VPH  
 CRITICAL GAP = TG = 5.5 SECS  
 POTENTIAL CAPACITY = M2 = 893. PCH  
 DEMAND = BL = 24 PCH  
 CAPACITY USED = 2.69 %  
 IMPEDANCE FACTOR = P2 = .983  
 AVAILABLE RESERVE = 869. PCH  
 DELAY & LOS = A

STEP 3 LEFT TURN FROM C CL  
 CONFLICTING FLOWS = MH = 313. VPH  
 CRITICAL GAP = TG = 7.5 SECS  
 POTENTIAL CAPACITY = M3 = 514. PCH  
 ADJUSTING FOR IMPEDANCE = M3 = 505. PCH

STEP 3 CONTINUED

CL

NO SHARED LANE DEMAND =  
AVAILABLE RESERVE =  
DELAY & LOS =

84 PCH  
421. PCH  
A

SHARED LANE DEMAND =  
POTENTIAL CAPACITY = M13 =  
AVAILABLE RESERVE =  
DELAY & LOS =

0 PCH  
0. PCH  
0. PCH  
N/A

-----  
LOS C VOLUMES:  
VEHICLES PER HOUR

LEG C  
305.  
-----

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UNSIGNALIZED - T - INTERSECTION CAPACITY CALCULATION FORM

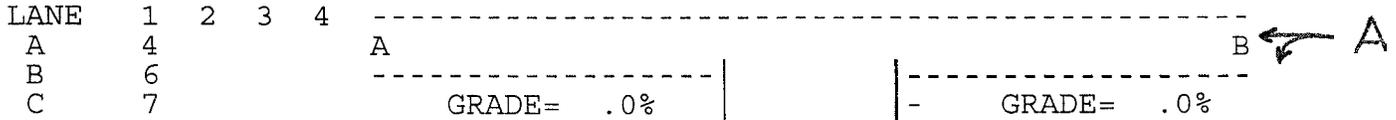
2/23/2000 8: 7: 3

FILE NAME: 2HW331@ KASH

CITY: ANALYST: RSLP  
 INTERSECTION: HWY 331 @ Kash Kash Rd  
 ALTERNATE: METRO SIZE: LESS THAN 20,000  
 COUNT: 2000 PM Peak Hour TYPE OF CONTROL: STOP  
 LOCATION PLAN:



APPROACH CODES ARE



SPEED: 55 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO



APPROACH	A		B		C	
MOVE	AT	AR	BL	BT	CL	CR
VOLUME	167	8	5	259	5	5
PCH			6		6	
LANES		1		1		1

STEP 1 RIGHT TURN FROM C

CONFLICTING FLOWS = MH =	CR	171. VPH
CRITICAL GAP = TG =		6.5 SECS
POTENTIAL CAPACITY = M1 =		749. PCH

SHARED LANE - SEE STEP 3

NO SHARED LANE DEMAND =	0 PCH
AVAILABLE RESERVE =	0. PCH
DELAY & LOS =	N/A

STEP 2 LEFT TURN FROM B

CONFLICTING FLOWS = MH =	BL	175. VPH
CRITICAL GAP = TG =		5.5 SECS
POTENTIAL CAPACITY = M2 =		907. PCH
DEMAND = BL =		6 PCH
CAPACITY USED =		.66 %
IMPEDANCE FACTOR = P2 =		.996
AVAILABLE RESERVE =		901. PCH
DELAY & LOS =		A

STEP 3 LEFT TURN FROM C

CONFLICTING FLOWS = MH =	CL	435. VPH
CRITICAL GAP = TG =		7.5 SECS
POTENTIAL CAPACITY = M3 =		426. PCH
ADJUSTING FOR IMPEDANCE = M3 =		424. PCH

STEP 3 CONTINUED

CL

NO SHARED LANE DEMAND =	0	PCH
AVAILABLE RESERVE =	0.	PCH
DELAY & LOS =	N/A	
SHARED LANE DEMAND =	12	PCH
POTENTIAL CAPACITY = M13 =	542.	PCH
AVAILABLE RESERVE =	530.	PCH
DELAY & LOS =	A	

-----  
LOS C VOLUMES:  
VEHICLES PER HOUR

LEG C  
51.  
-----

VER 03/93

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM  
4-WAY INTERSECTION

3/ 8/2000 9:51:16

FILE NAME: 2HW331@WBR

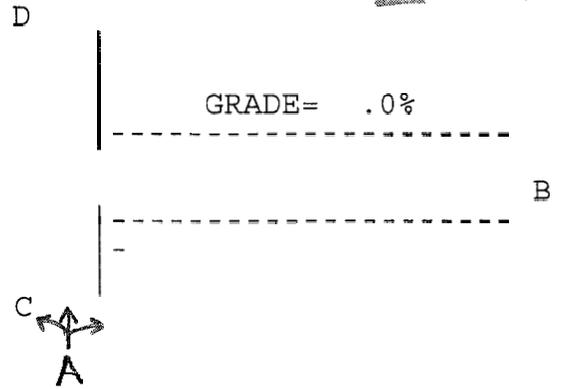
CITY:  
INTERSECTION: HWY 331 @ I-84 WB Ramps  
ALTERNATE:  
COUNT: 2000 PM PEAK HOUR  
LOCATION PLAN:

ANALYST: RSLP  
METRO SIZE: LESS THAN 20,000  
TYPE OF CONTROL: STOP

APPROACH CODES ARE

LANE	1	2	3	4	GRADE=	.0%
A	6					
B	4					
C	5					
D	0					

Diagram showing approach codes and grades for lanes A, B, C, and D. Lane A has a grade of .0%. Lane B has a grade of .0%. Lane C has a grade of .0%. Lane D has a grade of .0%. A diagram shows a north-south street with a westbound ramp (A) and an eastbound ramp (B). A north-south street (C) crosses the intersection. A diagram shows a north-south street with a westbound ramp (A) and an eastbound ramp (B). A north-south street (C) crosses the intersection.



SPEED: 55 MPH  
RESTRICTED SIGHT CODE IS 1  
MINOR STREET ADJUSTMENTS -  
ACCELERATION LANE? NO  
CURB RADIUS OR TURN ANGLE? NO

APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	49	134	0	0	107	155	5	0	42	0	0	0
PCH	54			0			6	0	46	0	0	0
LANES		1			1			1			0	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	134.	DR	0. VPH
CRITICAL GAP = TG =	6.5		6.5 SECS
POTENTIAL CAPACITY = M1 =	785.		0. PCH
DEMAND =	46		0 PCH
CAPACITY USED =	5.858		.000 %
IMPEDANCE FACTOR =	.961		1.001

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	0.	AL	262. VPH
CRITICAL GAP = TG =	5.5		5.5 SECS
POTENTIAL CAPACITY = M2 =	950.		820. PCH
DEMAND =	0		54 PCH
CAPACITY USED =	.00		6.59 %
IMPEDANCE FACTOR =	1.001		.956
AVAILABLE RESERVE =	0.		766. PCH
DELAY & LOS =	N/A		A

---

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	445.	368. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN3 =	419.	473. PCH
	IMPEDANCE ADJUSTMENT = M3 =	401.	453. PCH
	DEMAND =	0	0 PCH
	CAPACITY USED =	.00	.00 %
	IMPEDANCE FACTOR = P3 =	1.001	1.001

NO SHARED LANE		
AVAILABLE RESERVE=	0.	0. PCH
DELAY & LOS =	N/A	N/A

SHARED LANE WITH LEFT TURN - SEE STEP 4

SHARED LANE DEMAND =	0	0 PCH
POTENTIAL CAPACITY = M13 =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

---

STEP 4 - LEFT TURN FROM C/D	CL	DL
CONFLICTING FLOWS = MH =	445.	0. VPH
CRITICAL GAP = TG =	7.5	7.5 SECS
POTENTIAL CAPACITY = MN =	419.	0. PCH
ADJUST FOR IMPEDANCE:	401.	0. PCH

NO SHARED LANE DEMAND =	0	0 PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT & THRU		
SHARED LANE DEMAND =	0	0 PCH
CAPACITY OF SHARED LANE =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT, THRU, & RIGHT		
SHARED LANE DEMAND =	52	0 PCH
CAPACITY OF SHARED LANE =	684.	0. PCH
AVAILABLE RESERVE =	632.	0. PCH
DELAY & LOS =	A	N/A

---

LOS C VOLUMES:	FOR LEG C	FOR LEG D
VEHICLES PER HOUR	128.	0.

---

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM

4-WAY INTERSECTION

3/ 8/2000 9:52:48

FILE NAME: 2HW 331 @ EBR

CITY:  
 INTERSECTION: HWY 331 @ I-84 EB Ramps  
 ALTERNATE:  
 COUNT: 2000 PM PEAK HOUR  
 LOCATION PLAN:

ANALYST: RSLP  
 METRO SIZE: LESS THAN 20,000  
 TYPE OF CONTROL: STOP

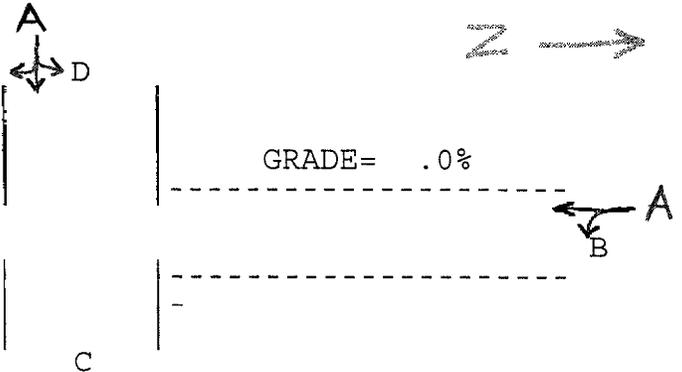
APPROACH CODES ARE

LANE	1	2	3	4
A	4			
B	6			
C	0			
D	5			

GRADE= .0%

GRADE= .0%

GRADE= .0%  
 GRADE= .0%



SPEED: 55 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO

APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	0	68	0	42	72	0	0	0	0	149	0	53
PCH	0			46			0	0	0	164	0	58
LANES		1			1			0			1	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	CR	DR
CRITICAL GAP = TG =	0.	72. VPH
POTENTIAL CAPACITY = M1 =	6.5	6.5 SECS
DEMAND =	0.	848. PCH
CAPACITY USED =	0	58 PCH
IMPEDANCE FACTOR =	.000	6.838 %
	1.001	.954

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE =	0	0. PCH
DELAY & LOS =	N/A	N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	BL	AL
CRITICAL GAP = TG =	68.	0. VPH
POTENTIAL CAPACITY = M2 =	5.5	5.5 SECS
DEMAND =	1024.	1019. PCH
CAPACITY USED =	46	0 PCH
IMPEDANCE FACTOR =	4.49	.00 %
AVAILABLE RESERVE =	.970	1.001
DELAY & LOS =	978.	0. PCH
	A	N/A

-----

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	182.	182. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN3 =	624.	624. PCH
	IMPEDANCE ADJUSTMENT = M3 =	606.	606. PCH
	DEMAND =	0	0 PCH
	CAPACITY USED =	.00	.00 %
	IMPEDANCE FACTOR = P3 =	1.001	1.001

NO SHARED LANE		
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

SHARED LANE WITH LEFT TURN - SEE STEP 4

SHARED LANE DEMAND =	0	0 PCH
POTENTIAL CAPACITY = M13 =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

-----

STEP 4 -	LEFT TURN FROM C/D	CL	DL
	CONFLICTING FLOWS = MH =	0.	182. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN =	0.	624. PCH
	ADJUST FOR IMPEDANCE:	0.	607. PCH

NO SHARED LANE DEMAND =	0	0 PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT & THRU		
SHARED LANE DEMAND =	0	0 PCH
CAPACITY OF SHARED LANE =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT, THRU, & RIGHT		
SHARED LANE DEMAND =	0	222 PCH
CAPACITY OF SHARED LANE =	0.	653. PCH
AVAILABLE RESERVE =	0.	431. PCH
DELAY & LOS =	N/A	A

-----

LOS C VOLUMES:	FOR LEG C	FOR LEG D
VEHICLES PER HOUR	128.	68.

-----

## FUTURE INTERSECTION OPERATIONS ANALYSIS WORKSHEET

# Future Conditions

## UNSIGNALIZED - T - INTERSECTION CAPACITY CALCULATION FORM

3/15/2000 11:45: 8

FILE NAME: HWY331@11

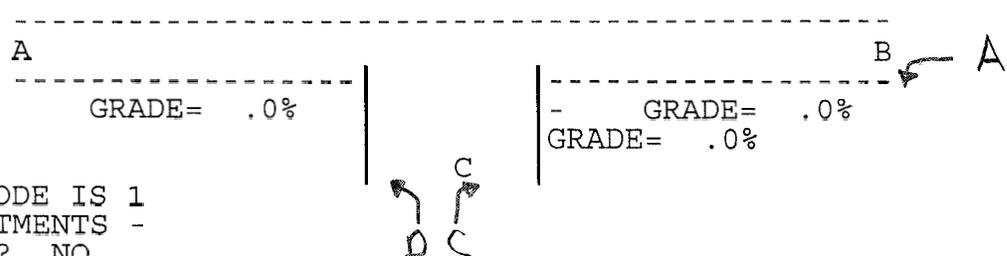
CITY:  
 INTERSECTION: HWY 331 @ OR 11  
 ALTERNATE:  
 COUNT: 2020 PM PEAK HOUR  
 LOCATION PLAN:

ANALYST: RSLP  
 METRO SIZE: LESS THAN 20,000  
 TYPE OF CONTROL: STOP



APPROACH CODES ARE

LANE	1	2	3	4
A	4			
B	2	3		
C	1	3		



SPEED: 55 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO

APPROACH	A		B		C	
MOVE	AT	AR	BL	BT	CL	CR
VOLUME	445	3	148	334	1	228
PCH			163		1	251
LANES		1		2		2

STEP 1 RIGHT TURN FROM C CR  
 CONFLICTING FLOWS = MH = 447. VPH  
 CRITICAL GAP = TG = 6.5 SECS  
 POTENTIAL CAPACITY = M1 = 519. PCH

SHARED LANE - SEE STEP 3

NO SHARED LANE DEMAND = 251 PCH  
 AVAILABLE RESERVE = 268. PCH  
 DELAY & LOS = C

STEP 2 LEFT TURN FROM B BL  
 CONFLICTING FLOWS = MH = 448. VPH  
 CRITICAL GAP = TG = 5.5 SECS  
 POTENTIAL CAPACITY = M2 = 657. PCH  
 DEMAND = BL = 163 PCH  
 CAPACITY USED = 24.81 %  
 IMPEDANCE FACTOR = P2 = .816  
 AVAILABLE RESERVE = 494. PCH  
 DELAY & LOS = A

STEP 3 LEFT TURN FROM C CL  
 CONFLICTING FLOWS = MH = 929. VPH  
 CRITICAL GAP = TG = 7.5 SECS  
 POTENTIAL CAPACITY = M3 = 182. PCH  
 ADJUSTING FOR IMPEDANCE = M3 = 148. PCH

CONTINUED

NO SHARED LANE DEMAND =	1	PCH
AVAILABLE RESERVE =	147.	PCH
DELAY & LOS =	D	
SHARED LANE DEMAND =	0	PCH
POTENTIAL CAPACITY = M13 =	0.	PCH
AVAILABLE RESERVE =	0.	PCH
DELAY & LOS =	N/A	

---

LOS C VOLUMES:	LEG C
VEHICLES PER HOUR	300.

---

VER 03/93

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM  
4-WAY INTERSECTION

3/ 7/2000 11:49:47

FILE NAME: HWY333 @ MI

CITY:  
INTERSECTION: HWY 331 @ Mission RD  
ALTERNATE:  
COUNT: 2020 PM PEAK HOUR  
LOCATION PLAN:

ANALYST: RSLP  
METRO SIZE: LESS THAN 20,000  
TYPE OF CONTROL: STOP

APPROACH CODES ARE

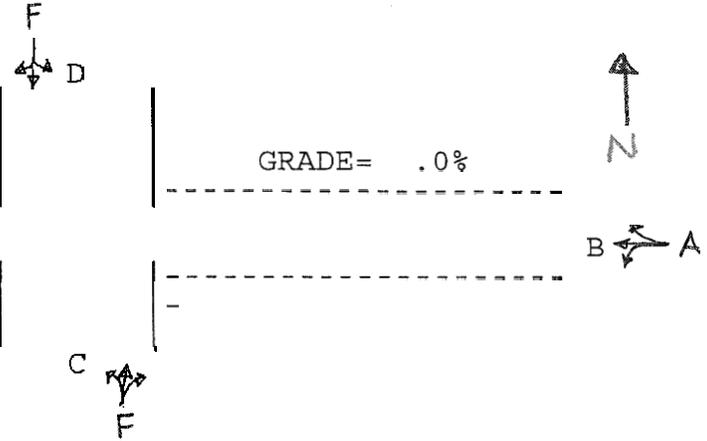
LANE	1	2	3	4
A	5			
B	5			
C	5			
D	5			

GRADE= .0%

GRADE= .0%

GRADE= .0%  
GRADE= .0%

SPEED: 40 MPH  
RESTRICTED SIGHT CODE IS 1  
MINOR STREET ADJUSTMENTS -  
ACCELERATION LANE? NO  
CURB RADIUS OR TURN ANGLE? NO



APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	31	136	32	158	218	62	72	235	166	25	168	2
PCH	34			174			79	259	183	28	185	2
LANES		1			1			1			1	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	152.	DR	249. VPH
CRITICAL GAP = TG =	6.0		6.0 SECS
POTENTIAL CAPACITY = M1 =	842.		746. PCH
DEMAND =	183		22 PCH
CAPACITY USED =	21.734		2.950 %
IMPEDANCE FACTOR =	.841		.981

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE =	0.		0. PCH
DELAY & LOS =	N/A		N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	168.	AL	280. VPH
CRITICAL GAP = TG =	5.5		5.5 SECS
POTENTIAL CAPACITY = M2 =	914.		803. PCH
DEMAND =	174		34 PCH
CAPACITY USED =	19.04		4.24 %
IMPEDANCE FACTOR =	.863		.972
AVAILABLE RESERVE =	740.		769. PCH
DELAY & LOS =	A		A

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	621.	606. VPH
	CRITICAL GAP = TG =	7.0	7.0 SECS
	POTENTIAL CAPACITY = MN3 =	353.	362. PCH
	IMPEDANCE ADJUSTMENT = M3 =	296.	304. PCH
	DEMAND =	259	185 PCH
	CAPACITY USED =	73.28	51.12 %
	IMPEDANCE FACTOR = P3 =	.343	.578

NO SHARED LANE		
AVAILABLE RESERVE=	0.	0. PCH
DELAY & LOS =	N/A	N/A

SHARED LANE WITH LEFT TURN - SEE STEP 4

SHARED LANE DEMAND =	0	0 PCH
POTENTIAL CAPACITY = M13 =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

STEP 4 - LEFT TURN FROM C/D	CL	DL
CONFLICTING FLOWS = MH =	809.	1007. VPH
CRITICAL GAP = TG =	6.5	6.5 SECS
POTENTIAL CAPACITY = MN =	304.	221. PCH
ADJUST FOR IMPEDANCE:	144.	53. PCH

NO SHARED LANE DEMAND =	0	0 PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT & THRU		
SHARED LANE DEMAND =	0	0 PCH
CAPACITY OF SHARED LANE =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT, THRU, & RIGHT		
SHARED LANE DEMAND =	521.	235 PCH
CAPACITY OF SHARED LANE =	318.	202. PCH
AVAILABLE RESERVE =	-203.	-33. PCH
DELAY & LOS =	F	F

LOS C VOLUMES:  
VEHICLES PER HOUR

FOR LEG C  
521.

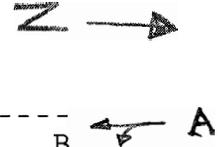
FOR LEG D  
618.

UNSIGNALIZED - T - INTERSECTION CAPACITY CALCULATION FORM

3/ 7/2000 11:51:53

FILE NAME: HWY331@GR

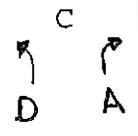
CITY: ANALYST: RSLP  
 INTERSECTION: HWY 331 @ Wild Horse Gaming Resort  
 ALTERNATE: METRO SIZE: LESS THAN 20,000  
 COUNT: 2020 PM PEAK HOUR TYPE OF CONTROL: STOP  
 LOCATION PLAN:



APPROACH CODES ARE

LANE	1	2	3	4	-----	-----	B
A	1	2			A		
B		6					
C		1	3				

SPEED: 55 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO



APPROACH	A		B		C	
MOVE	AT	AR		BT	CL	CR
VOLUME	348	92	54	381	105	77
PCH			59		116	85
LANES	2			1		2

STEP 1 RIGHT TURN FROM C CR  
 CONFLICTING FLOWS = MH = 348. VPH  
 CRITICAL GAP = TG = 6.5 SECS  
 POTENTIAL CAPACITY = M1 = 594. PCH  
 SHARED LANE - SEE STEP 3  
 NO SHARED LANE DEMAND = 85 PCH  
 AVAILABLE RESERVE = 509. PCH  
 DELAY & LOS = A

STEP 2 LEFT TURN FROM B BL  
 CONFLICTING FLOWS = MH = 440. VPH  
 CRITICAL GAP = TG = 5.5 SECS  
 POTENTIAL CAPACITY = M2 = 663. PCH  
 DEMAND = BL = 59 PCH  
 CAPACITY USED = 8.89 %  
 IMPEDANCE FACTOR = P2 = .939  
 AVAILABLE RESERVE = 604. PCH  
 DELAY & LOS = A

STEP 3 LEFT TURN FROM C CL  
 CONFLICTING FLOWS = MH = 783. VPH  
 CRITICAL GAP = TG = 7.5 SECS  
 POTENTIAL CAPACITY = M3 = 237. PCH  
 ADJUSTING FOR IMPEDANCE = M3 = 223. PCH

STEP 3 CONTINUED

NO SHARED LANE DEMAND =	116	PCH
AVAILABLE RESERVE =	107.	PCH
DELAY & LOS =	D	
SHARED LANE DEMAND =	0	PCH
POTENTIAL CAPACITY = M13 =	0.	PCH
AVAILABLE RESERVE =	0.	PCH
DELAY & LOS =	N/A	

-----  
LOS C VOLUMES:  
VEHICLES PER HOUR

LEG C  
238.  
-----

VER 03/93

UNSIGNALIZED - T - INTERSECTION CAPACITY CALCULATION FORM

7/18/2000 9:59: 2

FILE NAME: HWY331@KASH

CITY: ANALYST: RSLP  
 INTERSECTION: HWY 331 @ KASH KASH RD  
 ALTERNATE: METRO SIZE: LESS THAN 20,000  
 COUNT: 2020 PM PEAK HOUR TYPE OF CONTROL: STOP  
 LOCATION PLAN:

APPROACH CODES ARE

LANE 1 2 3 4  
 A 4  
 B 6  
 C 7

A

GRADE= .0%

GRADE= .0%  
 GRADE= .0%

Z

B A

SPEED: 55 MPH  
 RESTRICTED SIGHT CODE IS 1  
 MINOR STREET ADJUSTMENTS -  
 ACCELERATION LANE? NO  
 CURB RADIUS OR TURN ANGLE? NO



APPROACH	A		B		C	
MOVE	AT	AR	BL	BT		CR
VOLUME	598	8	5	748	5	5
PCH			6		6	6
LANES		1		1		1

STEP 1 RIGHT TURN FROM C CR  
 CONFLICTING FLOWS = MH = 602. VPH  
 CRITICAL GAP = TG = 6.5 SECS  
 POTENTIAL CAPACITY = M1 = 416. PCH  
 SHARED LANE - SEE STEP 3  
 NO SHARED LANE DEMAND = 0 PCH  
 AVAILABLE RESERVE = 0. PCH  
 DELAY & LOS = N/A

STEP 2 LEFT TURN FROM B BL  
 CONFLICTING FLOWS = MH = 606. VPH  
 CRITICAL GAP = TG = 5.5 SECS  
 POTENTIAL CAPACITY = M2 = 542. PCH  
 DEMAND = BL = 6 PCH  
 CAPACITY USED = 1.11 %  
 IMPEDANCE FACTOR = P2 = .993  
 AVAILABLE RESERVE = 536. PCH  
 DELAY & LOS = A

STEP 3 LEFT TURN FROM C CL  
 CONFLICTING FLOWS = MH = 1355. VPH  
 CRITICAL GAP = TG = 7.5 SECS  
 POTENTIAL CAPACITY = M3 = 80. PCH  
 ADJUSTING FOR IMPEDANCE = M3 = 80. PCH

STEP 3 CONTINUED

CL

NO SHARED LANE DEMAND =	0	PCH
AVAILABLE RESERVE =	0.	PCH
DELAY & LOS =	N/A	
SHARED LANE DEMAND =	12	PCH
POTENTIAL CAPACITY = M13 =	134.	PCH
AVAILABLE RESERVE =	122.	PCH
DELAY & LOS =	D	

-----  
LOS C VOLUMES:  
VEHICLES PER HOUR

LEG C  
17.  
-----

VER 03/93

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM  
4-WAY INTERSECTION

7/18/2000 10: 3: 7

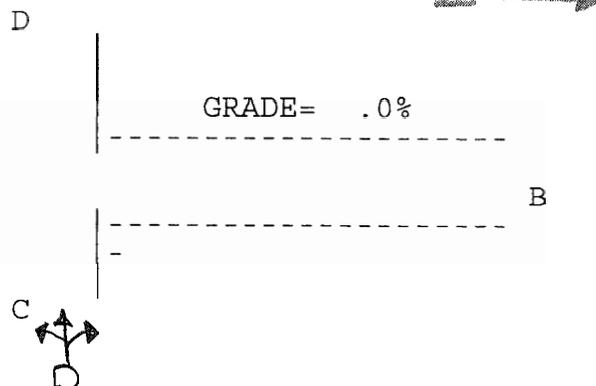
FILE NAME: ~~HWY331@KASH~~  
HWY331@ WBR

CITY:  
INTERSECTION: HWY 331 @ I-84 WB RAMPS  
ALTERNATE:  
COUNT: 2020 PM PEAK HOUR  
LOCATION PLAN:

ANALYST: RSLP  
METRO SIZE: LESS THAN 20,000  
TYPE OF CONTROL: STOP

APPROACH CODES ARE

LANE	1	2	3	4	GRADE=	.0%
A	6					
B	4					
C	5					
D	0					



SPEED: 55 MPH  
RESTRICTED SIGHT CODE IS 1  
MINOR STREET ADJUSTMENTS -  
ACCELERATION LANE? NO  
CURB RADIUS OR TURN ANGLE? NO

APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	172	483	0	0	259	512	11	0	124	0	0	0
PCH	189			0			12	0	136	0	0	0
LANES		1			1			1			0	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	483.	0. VPH
CRITICAL GAP = TG =	6.5	6.5 SECS
POTENTIAL CAPACITY = M1 =	493.	0. PCH
DEMAND =	136	0 PCH
CAPACITY USED =	27.558	.000 %
IMPEDANCE FACTOR =	.793	1.001

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	0.	771. VPH
CRITICAL GAP = TG =	5.5	5.5 SECS
POTENTIAL CAPACITY = M2 =	630.	441. PCH
DEMAND =	0	189 PCH
CAPACITY USED =	.00	42.81 %
IMPEDANCE FACTOR =	1.001	.658
AVAILABLE RESERVE =	0.	252. PCH
DELAY & LOS =	N/A	C

---

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	1426.	1170. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN3 =	70.	115. PCH
	IMPEDANCE ADJUSTMENT = M3 =	46.	76. PCH
	DEMAND =	0	0 PCH
	CAPACITY USED =	.00	.00 %
	IMPEDANCE FACTOR = P3 =	1.001	1.001

NO SHARED LANE		
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

SHARED LANE WITH LEFT TURN - SEE STEP 4

SHARED LANE DEMAND =	0	0 PCH
POTENTIAL CAPACITY = M13 =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

---

STEP 4 - LEFT TURN FROM C/D	CL	DL
CONFLICTING FLOWS = MH =	1426.	0. VPH
CRITICAL GAP = TG =	7.5	7.5 SECS
POTENTIAL CAPACITY = MN =	70.	0. PCH
ADJUST FOR IMPEDANCE:	46.	0. PCH

NO SHARED LANE DEMAND =	0	0 PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT & THRU		
SHARED LANE DEMAND =	0	0 PCH
CAPACITY OF SHARED LANE =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT, THRU, & RIGHT		
SHARED LANE DEMAND =	148	0 PCH
CAPACITY OF SHARED LANE =	265.	0. PCH
AVAILABLE RESERVE =	117.	0. PCH
DELAY & LOS =	D	N/A

---

LOS C VOLUMES:  
VEHICLES PER HOUR

FOR LEG C  
121.

FOR LEG D  
0.

---

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM  
4-WAY INTERSECTION

7/18/2000 10: 5:18

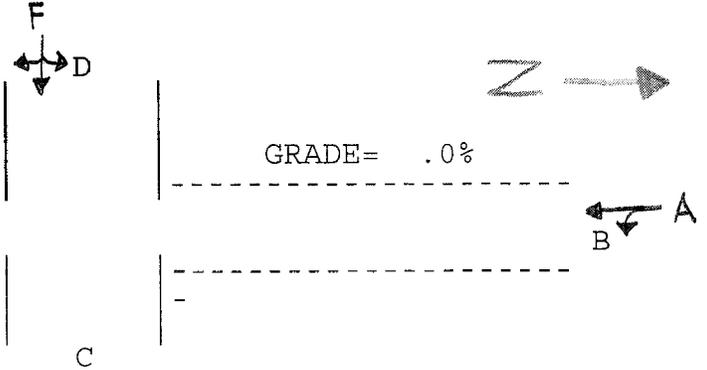
FILE NAME: ~~HWY 331 @ EBR~~  
HWY 331 @ EBR

CITY:  
INTERSECTION: HWY 331 @ I-84 EB RAMPS  
ALTERNATE:  
COUNT: 2020 PM PEAK HOUR  
LOCATION PLAN:

ANALYST: RSLP  
METRO SIZE: LESS THAN 20,000  
TYPE OF CONTROL: STOP

APPROACH CODES ARE

LANE	1	2	3	4	GRADE=
A	4				.0%
B	6				
C	0				
D	5				



SPEED: 55 MPH  
RESTRICTED SIGHT CODE IS 1  
MINOR STREET ADJUSTMENTS -  
ACCELERATION LANE? NO  
CURB RADIUS OR TURN ANGLE? NC

APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	0	270	21	158	122	0	0	0	0	419	0	90
PCH	0			174			0	0	0	461	0	99
LANES		1			1			0			1	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	CR	DR
CRITICAL GAP = TG =	0.	122. VPH
POTENTIAL CAPACITY = M1 =	6.5	6.5 SECS
DEMAND =	0.	797. PCH
CAPACITY USED =	0	99 PCH
IMPEDANCE FACTOR =	.000	12.418 %
	1.001	.913

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	BL	AL
CRITICAL GAP = TG =	291.	0. VPH
POTENTIAL CAPACITY = M2 =	5.5	5.5 SECS
DEMAND =	792.	963. PCH
CAPACITY USED =	174	0 PCH
IMPEDANCE FACTOR =	21.96	.00 %
AVAILABLE RESERVE =	.839	1.001
DELAY & LOS =	618.	0. PCH
	A	N/A

---

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	561.	571. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN3 =	348.	341. PCH
	IMPEDANCE ADJUSTMENT = M3 =	292.	287. PCH
	DEMAND =	0	0 PCH
	CAPACITY USED =	.00	.00 %
	IMPEDANCE FACTOR = P3 =	1.001	1.001
	NO SHARED LANE		
	AVAILABLE RESERVE =	0.	0. PCH
	DELAY & LOS =	N/A	N/A
	SHARED LANE WITH LEFT TURN - SEE	STEP 4	
	SHARED LANE DEMAND =	0	0 PCH
	POTENTIAL CAPACITY = M13 =	0.	0. PCH
	AVAILABLE RESERVE =	0.	0. PCH
	DELAY & LOS =	N/A	N/A

---

STEP 4 -	LEFT TURN FROM C/D	CL	DL
	CONFLICTING FLOWS = MH =	0.	571. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN =	0.	341. PCH
	ADJUST FOR IMPEDANCE:	0.	287. PCH
	NO SHARED LANE DEMAND =	0	0 PCH
	AVAILABLE RESERVE =	0.	0. PCH
	DELAY & LOS =	N/A	N/A
	WITH LEFT & THRU		
	SHARED LANE DEMAND =	0	0 PCH
	CAPACITY OF SHARED LANE =	0.	0. PCH
	AVAILABLE RESERVE =	0.	0. PCH
	DELAY & LOS =	N/A	N/A
	WITH LEFT, THRU, & RIGHT		
	SHARED LANE DEMAND =	0	560 PCH
	CAPACITY OF SHARED LANE =	0.	323. PCH
	AVAILABLE RESERVE =	0.	-237. PCH
	DELAY & LOS =	N/A	F

---

LOS C VOLUMES:  
VEHICLES PER HOUR

FOR LEG C  
121.

FOR LEG D  
101.

---

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM  
4-WAY INTERSECTION

3/ 8/2000 9:33:25

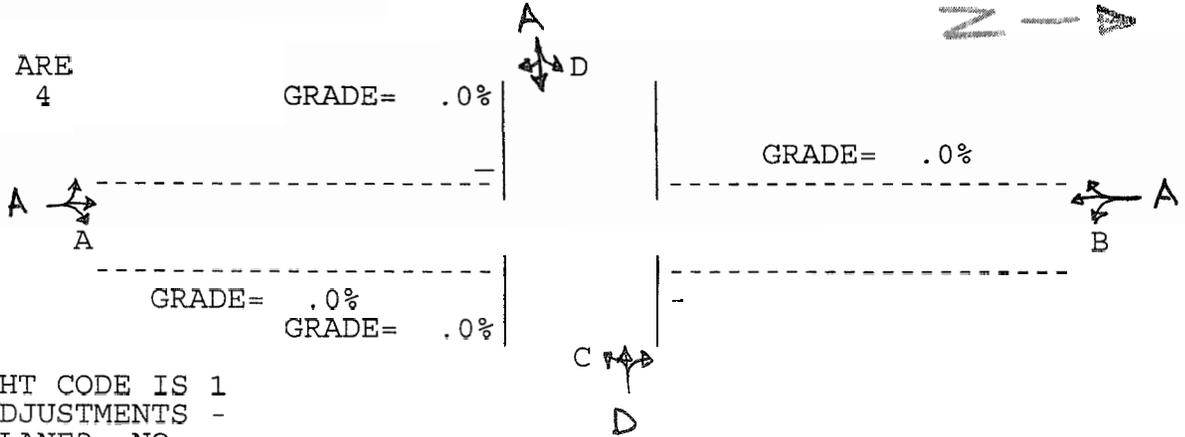
FILE NAME: HWY331TAZ12

CITY:  
INTERSECTION: HWY 331 @ TAZ 12-13  
ALTERNATE:  
COUNT: 2020 PM PEAK HOUR  
LOCATION PLAN:

ANALYST: RSLP  
METRO SIZE: LESS THAN 20,000  
TYPE OF CONTROL: STOP

APPROACH CODES ARE

LANE	1	2	3	4	GRADE=	.0%
A	5					
B	5					
C	5					
D	5					



SPEED: 55 MPH  
RESTRICTED SIGHT CODE IS 1  
MINOR STREET ADJUSTMENTS -  
ACCELERATION LANE? NO  
CURB RADIUS OR TURN ANGLE? NO

APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	24	394	14	17	339	2	66	6	77	2	1	16
PCH	26			19			73	7	85	2	0	18
LANES		1			1			1			1	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	401.	340. VPH
CRITICAL GAP = TG =	6.5	6.5 SECS
POTENTIAL CAPACITY = M1 =	553.	601. PCH
DEMAND =	85	18 PCH
CAPACITY USED =	15.367	2.996 %
IMPEDANCE FACTOR =	.891	.981

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	408.	341. VPH
CRITICAL GAP = TG =	5.5	5.5 SECS
POTENTIAL CAPACITY = M2 =	689.	747. PCH
DEMAND =	19	26 PCH
CAPACITY USED =	2.76	3.48 %
IMPEDANCE FACTOR =	.982	.977
AVAILABLE RESERVE =	670.	721. PCH
DELAY & LOS =	A	A

-----

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	783.	789. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN3 =	237.	234. PCH
	IMPEDANCE ADJUSTMENT = M3 =	227.	225. PCH
	DEMAND =	7	0 PCH
	CAPACITY USED =	2.95	.43 %
	IMPEDANCE FACTOR = P3 =	.981	.998

NO SHARED LANE		
AVAILABLE RESERVE=	0.	0. PCH
DELAY & LOS =	N/A	N/A

SHARED LANE WITH LEFT TURN - SEE STEP 4

SHARED LANE DEMAND =	0	0 PCH
POTENTIAL CAPACITY = M13 =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

-----

STEP 4 -	LEFT TURN FROM C/D	CL	DL
	CONFLICTING FLOWS = MH =	800.	872. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN =	230.	202. PCH
	ADJUST FOR IMPEDANCE:	216.	169. PCH

NO SHARED LANE DEMAND =	0	0 PCH
AVAILABLE RESERVE =	0	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT & THRU		
SHARED LANE DEMAND =	0	0 PCH
CAPACITY OF SHARED LANE =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT, THRU, & RIGHT		
SHARED LANE DEMAND =	165	21 PCH
CAPACITY OF SHARED LANE =	316.	454. PCH
AVAILABLE RESERVE =	151.	433. PCH
DELAY & LOS =	D	A

-----

LOS C VOLUMES:  
VEHICLES PER HOUR

FOR LEG C  
166.

FOR LEG D  
284.

-----

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM  
4-WAY INTERSECTION

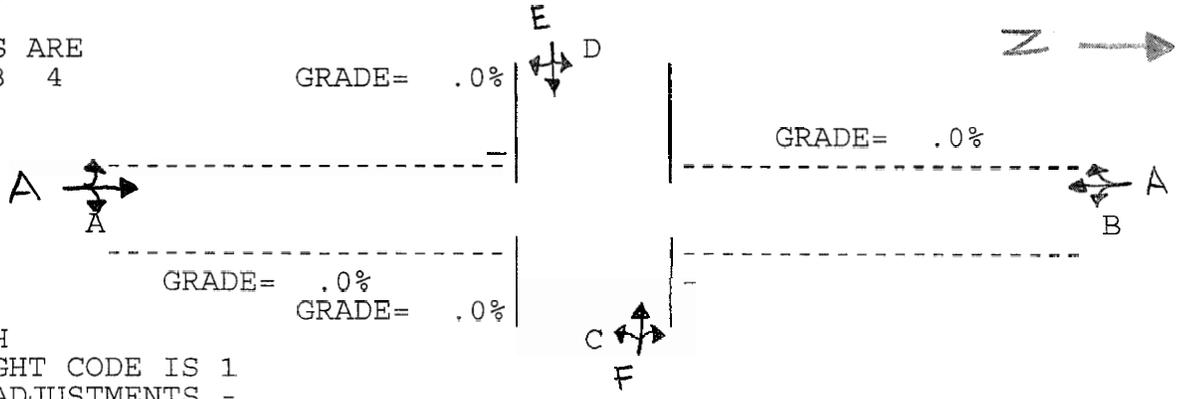
7/18/2000 12: 5:13

FILE NAME: HWY331@TAZ7

CITY:  
INTERSECTION: **HWY 331 @ TAZ 7-8**  
ALTERNATE:  
COUNT: 2020 PM PEAK HOUR  
LOCATION PLAN:

ANALYST: RSLP  
METRO SIZE: LESS THAN 20,000  
TYPE OF CONTROL: STOP

APPROACH CODES ARE  
LANE 1 2 3 4  
A 5  
B 5  
C 5  
D 5



SPEED: 55 MPH  
RESTRICTED SIGHT CODE IS 1  
MINOR STREET ADJUSTMENTS -  
ACCELERATION LANE? NO  
CURB RADIUS OR TURN ANGLE? NO

APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	174	324	121	51	381	54	178	0	75	41	0	174
PCH	191			56			196	0	83	45	0	191
LANES		1			1			1			1	

STEP 1 RIGHT TURN FROM C/D

CONFLICTING FLOWS = MH =	CR	DR
CRITICAL GAP = TG =	385.	408. VPH
POTENTIAL CAPACITY = M1 =	6.5	6.5 SECS
DEMAND =	566.	548. PCH
CAPACITY USED =	83	191 PCH
IMPEDANCE FACTOR =	14.671	34.865 %
	.896	.730

SHARED LANE - SEE STEP 3

NO SHARED LANE - RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

STEP 2 - LEFT TURNS FROM B/A

CONFLICTING FLOWS = MH =	BL	AL
CRITICAL GAP = TG =	445.	435. VPH
POTENTIAL CAPACITY = M2 =	5.5	5.5 SECS
DEMAND =	659.	667. PCH
CAPACITY USED =	56	191 PCH
IMPEDANCE FACTOR =	8.49	28.62 %
AVAILABLE RESERVE =	.942	.785
DELAY & LOS =	603.	476. PCH
	A	A

-----

STEP 3	THRU MOVEMENT FROM C/D	CT	DT
	CONFLICTING FLOWS = MT =	1045.	1078. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN3 =	146.	137. PCH
	IMPEDANCE ADJUSTMENT = M3 =	108.	101. PCH
	DEMAND =	0	0 PCH
	CAPACITY USED =	.00	.00 %
	IMPEDANCE FACTOR = P3 =	1.001	1.001

NO SHARED LANE		
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

SHARED LANE WITH LEFT TURN - SEE STEP 4

SHARED LANE DEMAND =	0	0 PCH
POTENTIAL CAPACITY = M13 =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

-----

STEP 4 -	LEFT TURN FROM C/D	CL	DL
	CONFLICTING FLOWS = MH =	1219.	1153. VPH
	CRITICAL GAP = TG =	7.5	7.5 SECS
	POTENTIAL CAPACITY = MN =	105.	119. PCH
	ADJUST FOR IMPEDANCE:	56.	79. PCH

NO SHARED LANE DEMAND =	0	0 PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT & THRU		
SHARED LANE DEMAND =	0	0 PCH
CAPACITY OF SHARED LANE =	0.	0. PCH
AVAILABLE RESERVE =	0.	0. PCH
DELAY & LOS =	N/A	N/A

WITH LEFT, THRU, & RIGHT		
SHARED LANE DEMAND =	279	236 PCH
CAPACITY OF SHARED LANE =	77.	254. PCH
AVAILABLE RESERVE =	-202.	18. PCH
DELAY & LOS =	F	E

-----

LOS C VOLUMES:	FOR LEG C	FOR LEG D
VEHICLES PER HOUR	207.	329.

-----

## Proposed Mitigation's for Failing Unsignalized Intersections

The three intersections that have critical movements with a LOS below the state of Oregon minimum (*LOS D*) are:

1. Highway 331 @ Mission Road
2. Highway 331 @ I-84 EB Ramps
3. Highway 331 @ I-84 WB Ramps
4. Highway 331 @ TAZ 7-8

### Proposed Mitigation's

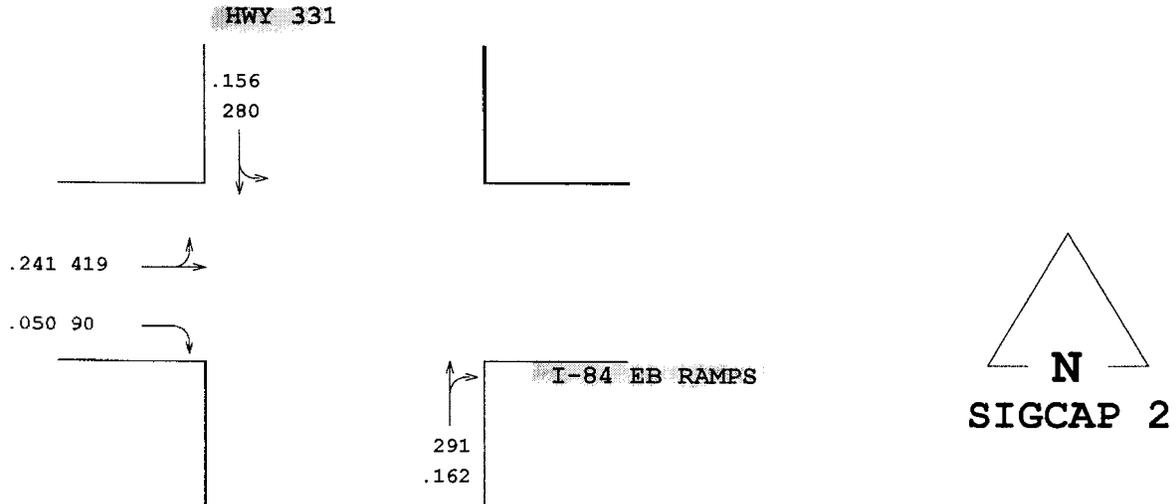
1. Highway 331 @ Mission Road
  - **Change the existing two-way stop** into an all-way stop controlled intersection. The lane configurations stay the same. This change results in an overall intersection LOS of C - D.
2. Highway 331 @ I-84 EB Ramps
  - **Change the existing two-way stop** into a three-phase signal.
  - The new lane configurations are: SB 1 left-through lane, NB 1 through-right lane, and EB 1 left-through lane and 1 right lane.
  - The three phases are: phase 1 is SB left and through, phase 2 is SB through and NB through-right, and phase 3 is EB left-through and right.
  - This results in a minimum movement LOS of B.
3. Highway 331 @ I-84 WB Ramps
  - **Change the existing two-way stop** into a three-phase signal.  
The new lane configurations are: SB 1 through and 1 exclusive right turn lane, NB 1 left-through lane, and WB 1 left-through lane and 1 right lane.
  - The three phases are: phase 1 is NB left and through, phase 2 is NB through and SB through and right, and phase 3 is EB left-through and right with the SB right-turn overlap.
  - This results in a minimum movement LOS of B.
4. Highway 331 @ TAZ 7-8
  - **Change the existing two-way stop** into a three-phase signal.
  - The new lane configurations are: SB 1 left and 1 through-right lane, NB 1 left and 1 through-right lane, WB 1 left-through and 1 right lane, and EB 1 left-through and 1 right lane.
  - The three phases are: phase 1 is SB and NB lefts, phase 2 is SB through-right and NB through-right, and phase 3 is WB left-through and right and EB left-through and right.  
This results in a minimum movement LOS of C.

INTERSECTION = 1      SCENARIO = 1      DATE/TIME: 7/18/2000 10:47:34 AM

PROJECT: CTUI0000-0001      ANALYST: RSLP  
 File: O:\PROJECT\C\CTUI0000\101-GENL\HCS\331@EBR.SIG  
 CITY: PERHLAOWBN: P@#@rP#h#E#A#O#R#O#  
 DESCRIPTION:

INTERSECTION LOS = B  
 SATURATION = 58%

C= 90    G=82    Y= 8



N-S V/C = .252  
 E-W V/C = .241  
 TOTAL AMBER = .089  
 MINIMUM V/C = .067

XXX = Adjusted Volumes    .XXX = V/C

APPR	MOVEMENT VOLUMES				MOVE SATURATION			MOVEMENT LOS		
	L	T	R	TOT	L	T	R	L	T	R
SOUTH	0	270	21	291	0%	40%	40%	...	A	A
NORTH	158	122	0	280	58%	58%	0%	B	B	...
WEST	419	0	90	509	58%	58%	19%	B	...	A
EAST	0	0	0	0	0%	0%	0%	...	...	...

APPR	TRUCKS %	PED DIST	LANE WIDTH	PHASING
SOUTH	5.0%	0ft	12.ft	N-S -LEFT TURNS NOT PROTECTED
NORTH	5.0%	0ft	12.ft	
WEST	5.0%	0ft	12.ft	E-W -LEFT TURNS NOT PROTECTED
EAST	5.0%	0ft	12.ft	

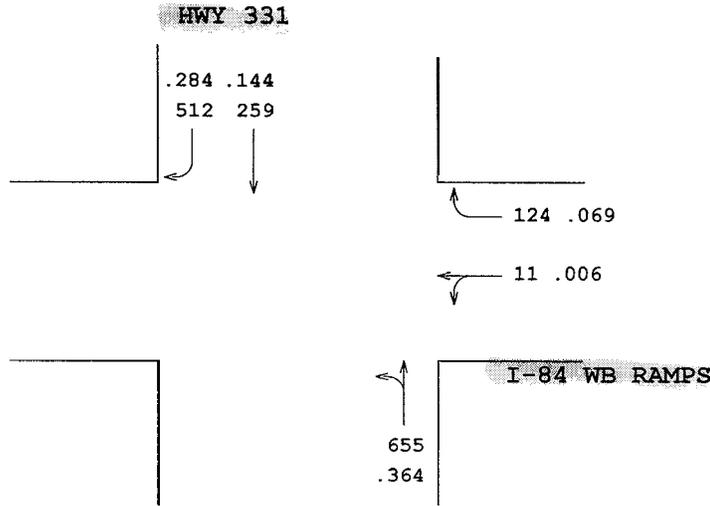
LEG	LEG VOL AT LOS C	APPR	TIME AVAIL(sec)			RED TIME(sec)			MOVE STORAGE(ft)		
			L	T	R	L	T	R	L	T	R
SOUTH	644	SOUTH	0.0	42.0	42.0	0.0	44.0	44.0	0	194	194
NORTH	1240	NORTH	42.0	42.0	0.0	44.0	44.0	0.0	187	187	0
WEST	651	WEST	40.0	40.0	40.0	46.0	0.0	46.0	291	291	62
EAST	229	EAST	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

INTERSECTION = 1 SCENARIO = 1 DATE/TIME: 7/18/2000 10:58:11 AM

PROJECT: CTUI0000-0001 ANALYST: RSLP  
 File: O:\PROJECT\C\CTUI0000\101-GENL\HCS\331@EBR.SIG  
 CITY: PEBBLECOURN: PEB@rPMhBEAR0HR00  
 DESCRIPTION:

INTERSECTION LOS = B  
 SATURATION = 54%

C= 90 G=82 Y= 8



N-S V/C = .383  
 E-W V/C = .069  
 TOTAL AMBER = .089  
 MINIMUM V/C = .067

XXX = Adjusted Volumes .XXX = V/C

APPR	MOVMENT VOLUMES				MOVE SATURATION			MOVEMENT LOS		
	L	T	R	TOT	L	T	R	L	T	R
SOUTH	172	483	0	655	54%	54%	0%	B	B	...
NORTH	0	259	512	771	0%	26%	42%	...	A	A
WEST	0	0	0	0	0%	0%	0%	...	...	...
EAST	11	0	124	135	54%	54%	54%	B	...	B

APPR	TRUCKS %	PED DIST	LANE WIDTH	PHASING
SOUTH	5.0%	0ft	12.ft	N-S -LEFT TURNS NOT PROTECTED
NORTH	5.0%	0ft	12.ft	
WEST	5.0%	0ft	12.ft	E-W -LEFT TURNS NOT PROTECTED
EAST	5.0%	0ft	12.ft	

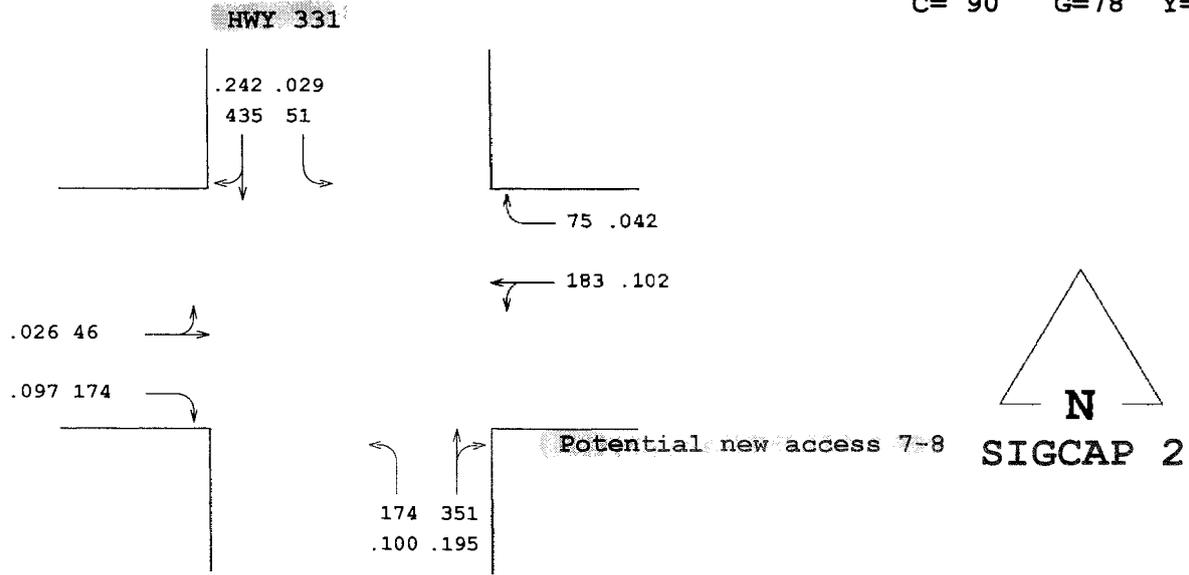
LEG	LEG VOL AT LOS C	APPR	TIME AVAIL(sec)			RED TIME(sec)			MOVE STORAGE(ft)		
			L	T	R	L	T	R	L	T	R
SOUTH	1291	SOUTH	69.5	69.5	0.0	16.5	16.5	0.0	186	186	0
NORTH	1923	NORTH	0.0	69.5	69.5	0.0	16.5	16.5	0	74	146
WEST	955	WEST	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
EAST	188	EAST	12.5	12.5	12.5	73.5	0.0	73.5	12	12	133

INTERSECTION = 1      SCENARIO = 1      DATE/TIME: 7/18/2000 10:54:23 AM

PROJECT: CTUI0000-0001      ANALYST: RSLP  
 File: O:\PROJECT\C\CTUI0000\101-GENL\HCS\331@TAZS.SIG  
 CITY: PERKLAOWRN: P000rPMhBBAK0H00  
 DESCRIPTION:

INTERSECTION LOS = C  
 SATURATION = 67%

C= 90    G=78    Y= 12



N-S V/C = .342  
 E-W V/C = .199  
 TOTAL AMBER = .133  
 MINIMUM V/C = .067

XXX = Adjusted Volumes    .XXX = V/C

APPR	MOVMENT VOLUMES				MOVE SATURATION			MOVEMENT LOS		
	L	T	R	TOT	L	T	R	L	T	R
SOUTH	174	230	121	525	67%	52%	52%	C	B	B
NORTH	51	381	54	486	37%	67%	67%	A	C	C
WEST	41	5	174	220	67%	67%	40%	C	C	A
EAST	178	5	75	258	67%	67%	25%	C	C	A

APPR	TRUCKS %	PED DIST	LANE WIDTH	PHASING
SOUTH	5.0%	0ft	12.ft	N-S -LEFT TURNS PROTECTED WITH OVERLAP
NORTH	5.0%	0ft	12.ft	
WEST	5.0%	0ft	12.ft	E-W -LEFT TURNS NOT PROTECTED
EAST	5.0%	0ft	12.ft	

LEG	LEG VOL AT LOS C
SOUTH	1365
NORTH	903
WEST	492
EAST	472

APPR	TIME AVAIL(sec)			RED TIME(sec)			MOVE STORAGE(ft)		
	L	T	R	L	T	R	L	T	R
SOUTH	14.4	39.7	39.7	71.6	46.3	46.3	183	245	245
NORTH	9.6	34.9	34.9	76.4	51.1	51.1	57	333	333
WEST	28.7	28.7	28.7	57.3	57.3	57.3	39	39	148
EAST	28.7	28.7	28.7	57.3	57.3	57.3	156	156	64

UNSIGNALIZED INTERSECTION CAPACITY CALCULATION FORM  
 FOUR-WAY STOP-CONTROLLED INTERSECTION

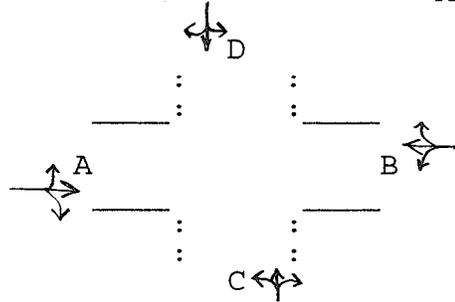
3/ 8/2000 15:23:24

FILE NAME:

CITY:  
 INTERSECTION: HWY 331 @ Mission RD  
 METRO SIZE: LESS THAN 20,000  
 LANE CONFIGURATION: 2-LANE BY 2-LANE  
 COUNT: 2020 PM PEAK HOUR  
 ALTERNATE:  
 LOCATION PLAN:

ANALYST: RSLP

N



APPR	A			B			C			D		
MOVE	AL	AT	AR	BL	BT	BR	CL	CT	CR	DL	DT	DR
VOL	31	136	32	158	218	62	72	235	166	25	168	20

STEP 1 DEMAND  
 APPR A AND APPR B = 637. VPH  
 APPR C AND APPR D = 686. VPH  
 TOTAL DEMAND = 1323. VPH

STEP 2 SPLIT  
 APPR A AND APPR B = 50 %  
 APPR C AND APPR D = 50 %

STEP 3 INTERSECTIONS SERVICE & SATURATION LEVELS  
 DELAY & LOS = C  
 SATURATION LEVEL = 70. %

STEP 4 LOS C VOLUMES  
 FOR A LEG = 526. VPH  
 FOR B LEG = 791. VPH  
 FOR C LEG = 859. VPH  
 FOR D LEG = 559. VPH  
 FOR INTERSECTION = 1368. VPH

## ALL-WAY STOP CONTROL(AWSC) ANALYSIS

## Worksheet 1 - Basic Intersection Information

Analyst: RSLP  
 Intersection: HWY 331 @ Mission RD  
 Count Date: 2020  
 Time Period: PM PEAK HOUR

## Worksheet 2 - Volume Adjustments and Site Characteristics

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. LT Volume:	72	25	31	158
2. TH Volume:	235	168	136	218
3. RT Volume:	166	20	32	62
4. Peak Hour Factor:	1.00	1.00	1.00	1.00
5. Flow Rate LT:	72	25	31	158
6. Flow Rate TH:	235	168	136	218
7. Flow Rate RT:	166	20	32	62
8. Flow Rate Total:	473	213	199	438
9. Prop. Heavy Vehicle:	0.00	0.00	0.00	0.00
10. Subject Approach			1	1
11. Opposing Approach	1	1	1	1
12. Conflicting Approach	1	1	1	1
13. Geometry Group	1	1	1	1
14. T (Time in Hours):	0.250			

## Worksheet 3 - Saturation Headway Adjustment Worksheet

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
Flow Rate Total:	473	213	199	438
Flow Rate LT:	72	25	31	158
Flow Rate RT:	166	20	32	62
4. Prop LT in lane:	0.15	0.12	0.16	0.36
5. Prop RT in lane:	0.35	0.09	0.16	0.14
6. Prop. Heavy Vehicle:	0.00	0.00	0.00	0.00
Geometry Group	1	1	1	1
7. hLT-adj by Table 10-18	0.20	0.20	0.20	0.20
8. hRT-adj by Table 10-18	-0.60	-0.60	-0.60	-0.60
9. hHV-adj Table 10-18	1.70	1.70	1.70	1.70
11. hadj	-0.18	-0.03	-0.07	-0.01

## Worksheet 4 - Departure Headway and Service Time

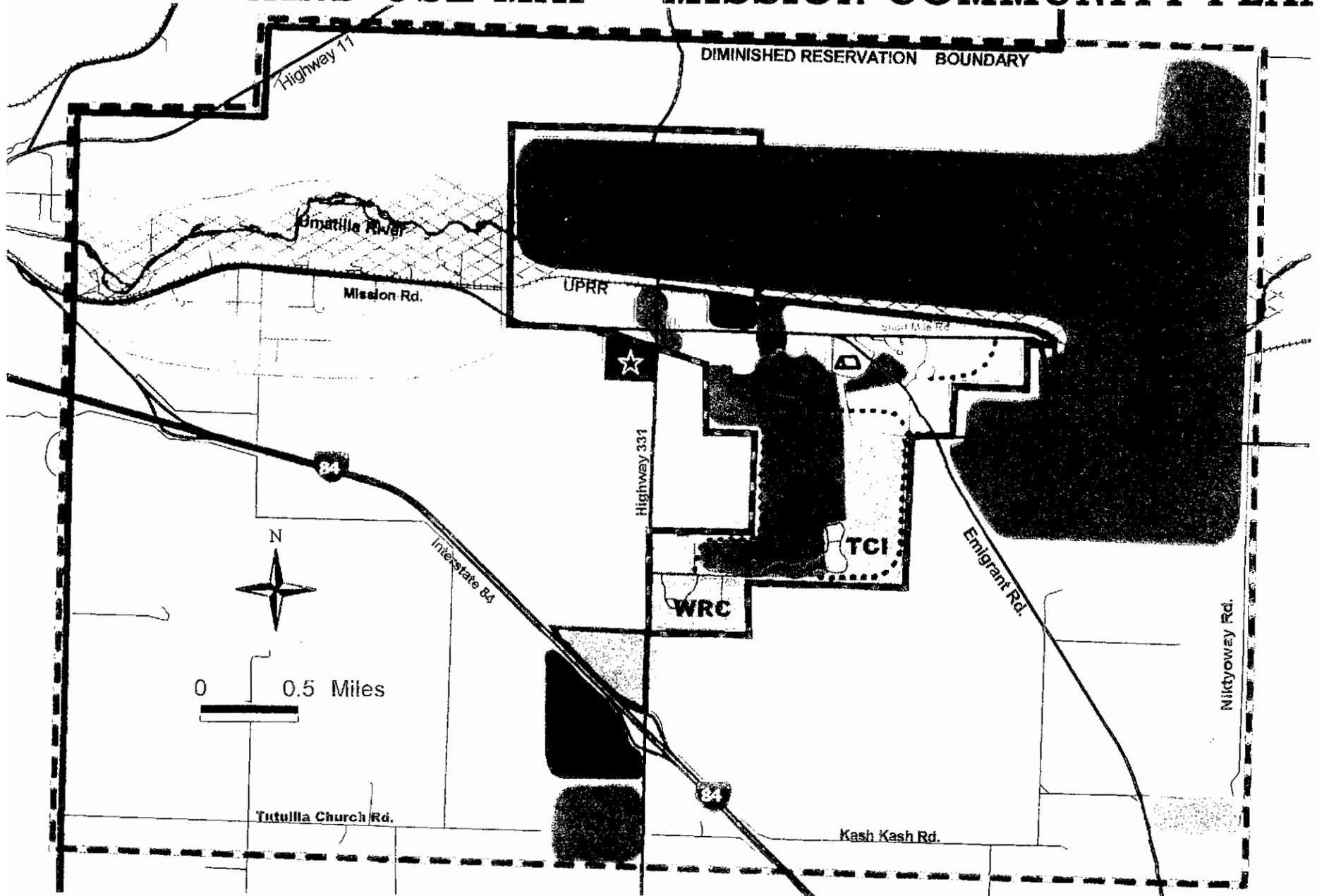
	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	473	213	199	438
2. hd, initial value	3.2	3.2	3.2	3.2
3. x, initial	0.42	0.19	0.18	0.39
4. hd, final value	6.2	7.0	7.0	6.5
5. x, final value	0.82	0.41	0.39	0.79
6. Move-up time, m	2.0	2.0	2.0	2.0
7. Service Time	4.2	5.0	5.0	4.5

## Worksheet 5 - Capacity and Level of Service

	North Bound	South Bound	East Bound	West Bound
	L1	L1	L1	L1
1. Total lane flow rate	473	213	199	438
2. Service Time	4.2	5.0	5.0	4.5
3. Degree Utilization, x	0.82	0.41	0.39	0.79
4. Departure headway, hd	6.2	7.0	7.0	6.5
5. Capacity	573	472	457	550
6. Delay	31.7	14.8	14.4	29.4
7. Level Of Service	D	B	B	D
8. Delay Approach	31.7	14.8	14.4	29.4
9. LOS approach	D	B	B	D
10. Delay, Intersection	25.6			

**FUTURE LAND USES**  
*(MISSION COMMUNITY PLAN)*  
**AND**  
**TRAFFIC FORECAST INFORMATION**

# FUTURE LAND USE MAP -- MISSION COMMUNITY PLAN



- |                                     |                       |                                |                                                     |                                  |                       |
|-------------------------------------|-----------------------|--------------------------------|-----------------------------------------------------|----------------------------------|-----------------------|
| <b>FUTURE LAND USE DESIGNATIONS</b> | AGRICULTURE/RURAL     | HEALTH/EDUCATION/CULTURE       | MISSION COMMUNITY PLANNING AREA BOUNDARY            | DIMINISHED RESERVATION BOUNDARY  | WILDHORSE GOLF COURSE |
|                                     | COMMUNITY COMMERCIAL  | LIGHT INDUSTRIAL/MANUFACTURING | TRIBAL WATER/SEWER SERVICE BOUNDARY                 | UMATILLA RIVER FLOODPLAIN        | FUTURE ROADS          |
|                                     | COMMUNITY RESIDENTIAL | OPEN SPACE                     | FUTURE WATER/SEWER BOUNDARY EXPANSION OPPORTUNITIES | TRIBAL CAPITAL BUILDING LOCATION |                       |
|                                     | GENERAL RURAL         | RURAL RESIDENTIAL              |                                                     |                                  |                       |
| GOVERNMENT                          | TOURIST COMMERCIAL    |                                |                                                     |                                  |                       |

## TRIP GENERATION CALCULATIONS

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 120 TH.GR.SQ.FT. OF GENERAL OFFICE

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DR-WAY VOLUME
AVG WKDY 2-WAY VOL	11.01	6.13	1.00	1321
7-9 AM PK HR ENTER	1.37	0.00	1.00	165
7-9 AM PK HR EXIT	0.19	0.00	1.00	22
7-9 AM PK HR TOTAL	1.56	1.40	1.00	187
4-6 PM PK HR ENTER	0.25	0.00	1.00	30
4-6 PM PK HR EXIT	1.24	0.00	1.00	148
4-6 PM PK HR TOTAL	1.49	1.37	1.00	179
SATURDAY 2-WAY VOL	2.37	2.08	1.00	284
PK HR ENTER	0.22	0.00	1.00	27
PK HR EXIT	0.19	0.00	1.00	23
PK HR TOTAL	0.41	0.68	1.00	49
SUNDAY 2-WAY VOL	0.98	1.29	1.00	118
PK HR ENTER	0.08	0.00	1.00	10
PK HR EXIT	0.06	0.00	1.00	7
PK HR TOTAL	0.14	0.38	1.00	17

Note: A zero rate indicates no rate data available  
 Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 50 DWELLING UNITS OF SINGLE FAMILY DWELLINGS

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DRIVE WAY VOLUME
AVG WKDY 2-WAY VOL	9.57	3.69	1.00	479
7-9 AM PK HR ENTER	0.19	0.00	1.00	9
7-9 AM PK HR EXIT	0.56	0.00	1.00	28
7-9 AM PK HR TOTAL	0.75	0.90	1.00	38
4-6 PM PK HR ENTER	0.65	0.00	1.00	32
4-6 PM PK HR EXIT	0.36	0.00	1.00	18
4-6 PM PK HR TOTAL	1.01	1.05	1.00	51
SATURDAY 2-WAY VOL	10.09	3.67	1.00	505
PK HR ENTER	0.51	0.00	1.00	25
PK HR EXIT	0.43	0.00	1.00	22
PK HR TOTAL	0.94	0.99	1.00	47
SUNDAY 2-WAY VOL	8.78	3.33	1.00	439
PK HR ENTER	0.46	0.00	1.00	23
PK HR EXIT	0.40	0.00	1.00	20
PK HR TOTAL	0.86	0.95	1.00	43

Note: A zero rate indicates no rate data available  
 Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS



Trip Generation for Casino Expansion

According to the Traffic Impact Study prepared for the Oregon Trail Interpretive Institute and the Wildhorse Gaming Facility, the casino will generate 1,822 ADT. The total ADT for the casino, bingo parlour, and restaurant will be 3,639 vpd. It was also estimated that the Interpretive Institute will generate 473 ADT during the peak season.

Assuming that the proportion of casino specific traffic to the total traffic for the entire resort as recalled is consistent with today's trends as recorded in the Dec/Jan. ODOT traffic counts recently conducted, then for the PM peak hour

$$\frac{\text{Casino ADT (1822)}}{\text{Total ADT (4112)}} = \frac{X \text{ PM peak hour vehicles for Casino}}{205 \text{ PM peak hour vehicles total}}$$

Therefore:  $X = 91 \text{ vph}$

If the casino were to expand by 50%, then the <sup>additional</sup> PM peak hour traffic generated would be 45 vph. Using existing directional split, this equates to:

20 vehicles entering during the PM peak hour & 25 vehicles existing during the PM peak hour.

SUMMARY OF TRIP GENERATION CALCULATION  
FOR 100 ROOMS OF HOTEL

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DRIVE WAY VOLUME
AVG WKDY 2-WAY VOL	8.23	3.38	1.00	823
7-9 AM PK HR ENTER	0.34	0.00	1.00	34
7-9 AM PK HR EXIT	0.22	0.00	1.00	22
7-9 AM PK HR TOTAL	0.56	0.78	1.00	56
4-6 PM PK HR ENTER	0.32	0.00	1.00	32
4-6 PM PK HR EXIT	0.29	0.00	1.00	29
4-6 PM PK HR TOTAL	0.61	0.81	1.00	61
SATURDAY 2-WAY VOL	8.19	3.13	1.00	819
PK HR ENTER	0.40	0.00	1.00	40
PK HR EXIT	0.32	0.00	1.00	32
PK HR TOTAL	0.72	0.87	1.00	72
SUNDAY 2-WAY VOL	5.95	2.89	1.00	595
PK HR ENTER	0.26	0.00	1.00	26
PK HR EXIT	0.30	0.00	1.00	30
PK HR TOTAL	0.56	0.75	1.00	56

Note: A zero rate indicates no rate data available  
Source: Institute of Transportation Engineers  
Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 3 TH.GR.SQ.FT. OF CONVENIENCE MARKET (OPEN 15-16 HR)

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DR-WAY VOLUME
AVG WKDY 2-WAY VOL	0.00	0.00	1.00	0
7-9 AM PK HR ENTER	15.51	0.00	1.00	47
7-9 AM PK HR EXIT	15.51	0.00	1.00	47
7-9 AM PK HR TOTAL	31.02	24.36	1.00	93
4-6 PM PK HR ENTER	16.94	0.00	1.00	51
4-6 PM PK HR EXIT	17.63	0.00	1.00	53
4-6 PM PK HR TOTAL	34.57	17.61	1.00	104
SATURDAY 2-WAY VOL	0.00	0.00	1.00	
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0
SUNDAY 2-WAY VOL	0.00	0.00	1.00	
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0

Note: A zero rate indicates no rate data available  
 Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF TRIP GENERATION CALCULATION  
FOR 12 EMPLOYEES OF ARENA

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DRIVE WAY VOLUME
AVG WKDY 2-WAY VOL	10.00	0.00	1.00	120
7-9 AM PK HR ENTER	0.00	0.00	1.00	0
7-9 AM PK HR EXIT	0.00	0.00	1.00	0
7-9 AM PK HR TOTAL	0.00	0.00	1.00	0
4-6 PM PK HR ENTER	0.00	0.00	1.00	0
4-6 PM PK HR EXIT	0.00	0.00	1.00	0
4-6 PM PK HR TOTAL	0.00	0.00	1.00	0
SATURDAY 2-WAY VOL	0.00	0.00	1.00	0
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0
SUNDAY 2-WAY VOL	0.00	0.00	1.00	0
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0

*ASSUMED: 2/10/00*

Note: A zero rate indicates no rate data available  
The above rates were calculated from these equations:

24-Hr. 2-Way Volume: 0, R<sup>2</sup> = 0  
 7-9 AM Peak Hr. Total: 0  
 R<sup>2</sup> = 0, 0 Enter, 0 Exit  
 4-6 PM Peak Hr. Total: 0  
 R<sup>2</sup> = 0, 0 Enter, 0 Exit  
 AM Gen Pk Hr. Total: 0  
 R<sup>2</sup> = 0, 0 Enter, 0 Exit  
 PM Gen Pk Hr. Total: 0  
 R<sup>2</sup> = 0, 0 Enter, 0 Exit  
 Sat. 2-Way Volume: 0, R<sup>2</sup> = 0  
 Sat. Pk Hr. Total: 0  
 R<sup>2</sup> = 0, 0 Enter, 0 Exit  
 Sun. 2-Way Volume: 0, R<sup>2</sup> = 0  
 Sun. Pk Hr. Total: 0  
 R<sup>2</sup> = 0, 0 Enter, 0 Exit

Source: Institute of Transportation Engineers  
Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 8 TH.GR.SQ.FT. OF BUSINESS PARK

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DR-WAY VOLUME
AVG WKDY 2-WAY VOL	12.76	5.78	1.00	102
7-9 AM PK HR ENTER	1.20	0.00	1.00	10
7-9 AM PK HR EXIT	0.23	0.00	1.00	2
7-9 AM PK HR TOTAL	1.43	1.34	1.00	11
4-6 PM PK HR ENTER	0.30	0.00	1.00	2
4-6 PM PK HR EXIT	0.99	0.00	1.00	8
4-6 PM PK HR TOTAL	1.29	1.28	1.00	10
SATURDAY 2-WAY VOL	2.56	1.96	1.00	20
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0
SUNDAY 2-WAY VOL	1.29	1.27	1.00	10
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0

Note: A zero rate indicates no rate data available  
 Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 4 TH.GR.SQ.FT. OF HIGH TURNOVER (SIT-DOWN) RESTAURANT

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DR-WAY VOLUME
AVG WKDY 2-WAY VOL	130.34	43.77	1.00	521
7-9 AM PK HR ENTER	4.82	0.00	1.00	19
7-9 AM PK HR EXIT	4.45	0.00	1.00	18
7-9 AM PK HR TOTAL	9.27	7.46	1.00	37
4-6 PM PK HR ENTER	6.52	0.00	1.00	26
4-6 PM PK HR EXIT	4.34	0.00	1.00	17
4-6 PM PK HR TOTAL	10.86	9.83	1.00	43
SATURDAY 2-WAY VOL	158.37	0.00	1.00	633
PK HR ENTER	12.60	0.00	1.00	50
PK HR EXIT	7.40	0.00	1.00	30
PK HR TOTAL	20.00	16.54	1.00	80
SUNDAY 2-WAY VOL	131.84	0.00	1.00	527
PK HR ENTER	10.15	0.00	1.00	41
PK HR EXIT	8.31	0.00	1.00	33
PK HR TOTAL	18.46	13.74	1.00	74

Note: A zero rate indicates no rate data available  
 Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 2 T.G.L.A. OF AUTOMOTIVE CARE CENTER

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DR-WAY VOLUME
AVG WKDY 2-WAY VOL	0.00	0.00	1.00	0
7-9 AM PK HR ENTER	1.91	0.00	1.00	4
7-9 AM PK HR EXIT	1.03	0.00	1.00	2
7-9 AM PK HR TOTAL	2.94	2.15	1.00	6
4-6 PM PK HR ENTER	1.69	0.00	1.00	3
4-6 PM PK HR EXIT	1.69	0.00	1.00	3
4-6 PM PK HR TOTAL	3.38	2.15	1.00	7
SATURDAY 2-WAY VOL	15.86	0.00	1.00	32
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0
SUNDAY 2-WAY VOL	2.59	0.00	1.00	
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0

Note: A zero rate indicates no rate data available  
 Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF BUILDING SIZE

BUILDING TYPE.....Factory Outlet

=====

TOTAL ACRES.....	1.87
PERCENT IN ROADS.....	10
PERCENT OPEN SPACE.....	30
PARKING SP. / T.G.S.F.....	5
PARKING LEVELS.....	1
AREA PER PARKING SPACE.....	325
BUILDING FLOORS.....	1
MAX. LOT COVERAGE (%).....	100
MAX. FLOOR AREA RATIO.....	100

RESULTS =====

MAX. BUILDING GR. SQ. FT....	19550
BLDG. FOOTPRINT SQ. FT.....	19550
LOT COVERAGE (%).....	27
FLOOR AREA RATIO.....	.27
PARKING SPACES.....	98

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 20 T.G.L.A. OF FACTORY OUTLET CENTER

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DR-WAY VOLUME
AVG WKDY 2-WAY VOL	0.00	0.00	1.00	0
7-9 AM PK HR ENTER	0.00	0.00	1.00	0
7-9 AM PK HR EXIT	0.00	0.00	1.00	0
7-9 AM PK HR TOTAL	0.00	0.00	1.00	0
4-6 PM PK HR ENTER	3.37	0.00	1.00	67
4-6 PM PK HR EXIT	3.80	0.00	1.00	76
4-6 PM PK HR TOTAL	7.17	0.00	1.00	143
SATURDAY 2-WAY VOL	0.00	0.00	1.00	
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0
SUNDAY 2-WAY VOL	144.39	0.00	1.00	2888
PK HR ENTER	0.00	0.00	1.00	0
PK HR EXIT	0.00	0.00	1.00	0
PK HR TOTAL	0.00	0.00	1.00	0

Note: A zero rate indicates no rate data available  
 The above rates were calculated from these equations:

24-Hr. 2-Way Volume:  $0, R^2 = 0$   
 7-9 AM Peak Hr. Total:  $0$   
 $R^2 = 0, 0$  Enter,  $0$  Exit  
 4-6 PM Peak Hr. Total:  $LN(T) = .43LN(X) + 3.678$   
 $R^2 = .56, .47$  Enter,  $.53$  Exit  
 AM Gen Pk Hr. Total:  $0$   
 $R^2 = 0, 0$  Enter,  $0$  Exit  
 PM Gen Pk Hr. Total:  $T = 1.023(X) + 174.684$   
 $R^2 = .9, .51$  Enter,  $.49$  Exit  
 Sat. 2-Way Volume:  $0, R^2 = 0$   
 Sat. Pk Hr. Total:  $0$   
 $R^2 = 0, 0$  Enter,  $0$  Exit  
 Sun. 2-Way Volume:  $T = 11.126(X) + 2665.369, R^2 = .76$   
 Sun. Pk Hr. Total:  $0$   
 $R^2 = 0, 0$  Enter,  $0$  Exit

Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

## SUMMARY OF BUILDING SIZE

BUILDING TYPE.....Office Bldg.

```
=====
TOTAL ACRES..... 1.87
PERCENT IN ROADS..... 10
PERCENT OPEN SPACE..... 30
PARKING SP. / T.G.S.F..... 3.5
PARKING LEVELS..... 1
AREA PER PARKING SPACE..... 325
BUILDING FLOORS..... 2
MAX. LOT COVERAGE (%)..... 100
MAX. FLOOR AREA RATIO..... 100
```

## RESULTS =====

```
MAX. BUILDING GR. SQ. FT.... 31339
BLDG. FOOTPRINT SQ. FT..... 15670
LOT COVERAGE (%)..... 21
FLOOR AREA RATIO..... .43
PARKING SPACES..... 110
```

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 31 TH.GR.SQ.FT. OF GENERAL OFFICE

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DR-WAY VOLUME
AVG WKDY 2-WAY VOL	17.41	0.00	1.00	540
7-9 AM PK HR ENTER	2.08	0.00	1.00	65
7-9 AM PK HR EXIT	0.28	0.00	1.00	9
7-9 AM PK HR TOTAL	2.37	0.00	1.00	73
4-6 PM PK HR ENTER	0.63	0.00	1.00	19
4-6 PM PK HR EXIT	3.05	0.00	1.00	95
4-6 PM PK HR TOTAL	3.68	0.00	1.00	114
SATURDAY 2-WAY VOL	2.73	0.00	1.00	85
PK HR ENTER	0.25	0.00	1.00	8
PK HR EXIT	0.22	0.00	1.00	7
PK HR TOTAL	0.47	0.00	1.00	15
SUNDAY 2-WAY VOL	0.85	0.00	1.00	26
PK HR ENTER	0.12	0.00	1.00	4
PK HR EXIT	0.09	0.00	1.00	3
PK HR TOTAL	0.21	0.00	1.00	6

Note: A zero rate indicates no rate data available  
 The above rates were calculated from these equations:

24-Hr. 2-Way Volume:  $LN(T) = .768LN(X) + 3.654, R^2 = .8$   
 7-9 AM Peak Hr. Total:  $LN(T) = .797LN(X) + 1.558$   
 $R^2 = .83, .88$  Enter, .12 Exit  
 4-6 PM Peak Hr. Total:  $T = 1.121(X) + 79.295$   
 $R^2 = .82, .17$  Enter, .83 Exit  
 AM Gen Pk Hr. Total:  $LN(T) = .797LN(X) + 1.558$   
 $R^2 = .83, .88$  Enter, .12 Exit  
 PM Gen Pk Hr. Total:  $T = 1.121(X) + 79.295$   
 $R^2 = .82, .17$  Enter, .83 Exit  
 Sat. 2-Way Volume:  $T = 2.136(X) + 18.473, R^2 = .66$   
 Sat. Pk Hr. Total:  $LN(T) = .814LN(X) + -.115$   
 $R^2 = .59, .54$  Enter, .46 Exit  
 Sun. 2-Way Volume:  $LN(T) = .863LN(X) + .306, R^2 = .5$   
 Sun. Pk Hr. Total:  $LN(T) = .605LN(X) + -.228$   
 $R^2 = .56, .58$  Enter, .42 Exit

Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF BUILDING SIZE

BUILDING TYPE.....Commercial Businesses

=====

TOTAL ACRES.....	3.75
PERCENT IN ROADS.....	10
PERCENT OPEN SPACE.....	30
PARKING SP. / T.G.S.F.....	5
PARKING LEVELS.....	1
AREA PER PARKING SPACE.....	325
BUILDING FLOORS.....	1
MAX. LOT COVERAGE (%).....	100
MAX. FLOOR AREA RATIO.....	100
RESULTS =====	
MAX. BUILDING GR. SQ. FT....	39204
BLDG. FOOTPRINT SQ. FT.....	39204
LOT COVERAGE (%).....	27
FLOOR AREA RATIO.....	.27
PARKING SPACES.....	196

TRIP GENERATION:

Enter	(1.91 trips/1,000 GLSF) x (39.2)	=	75
Exit	(2.06 trips/1,000 GLSF) x (39.2)	=	81
Total			<u>156</u>

SUMMARY OF TRIP GENERATION CALCULATION  
FOR 50 EMPLOYEES OF WAREHOUSING

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DRIVE WAY VOLUME
AVG WKDY 2-WAY VOL	3.89	3.08	1.00	195
7-9 AM PK HR ENTER	0.37	0.00	1.00	18
7-9 AM PK HR EXIT	0.14	0.00	1.00	7
7-9 AM PK HR TOTAL	0.51	0.74	1.00	26
4-6 PM PK HR ENTER	0.21	0.00	1.00	10
4-6 PM PK HR EXIT	0.38	0.00	1.00	19
4-6 PM PK HR TOTAL	0.59	0.80	1.00	29
SATURDAY 2-WAY VOL	1.00	0.00	1.00	50
PK HR ENTER	0.06	0.00	1.00	3
PK HR EXIT	0.04	0.00	1.00	2
PK HR TOTAL	0.10	0.00	1.00	5
SUNDAY 2-WAY VOL	0.65	0.00	1.00	33
PK HR ENTER	0.03	0.00	1.00	2
PK HR EXIT	0.03	0.00	1.00	1
PK HR TOTAL	0.06	0.00	1.00	3

Note: A zero rate indicates no rate data available  
Source: Institute of Transportation Engineers  
Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

SUMMARY OF TRIP GENERATION CALCULATION  
 FOR 595 EMPLOYEES OF GENERAL LIGHT INDUSTRIAL

	AVERAGE RATE	STANDARD DEVIATION	ADJUSTMENT FACTOR	DRIVE WAY VOLUME
AVG WKDY 2-WAY VOL	3.02	1.86	1.00	1797
7-9 AM PK HR ENTER	0.37	0.00	1.00	217
7-9 AM PK HR EXIT	0.07	0.00	1.00	45
7-9 AM PK HR TOTAL	0.44	0.69	1.00	262
4-6 PM PK HR ENTER	0.09	0.00	1.00	52
4-6 PM PK HR EXIT	0.33	<b>0.00</b>	<b>1.00</b>	<b>197</b>
4-6 PM PK HR TOTAL	0.42	0.67	1.00	250
SATURDAY 2-WAY VOL	0.48	0.72	1.00	286
PK HR ENTER	0.02	0.00	1.00	14
PK HR EXIT	0.03	0.00	1.00	16
PK HR TOTAL	0.05	0.23	1.00	30
SUNDAY 2-WAY VOL	0.26	0.60	1.00	155
PK HR ENTER	0.02	0.00	1.00	11
PK HR EXIT	0.02	0.00	1.00	12
PK HR TOTAL	0.04	0.20	1.00	24

Note: A zero rate indicates no rate data available  
 Source: Institute of Transportation Engineers  
 Trip Generation, 6th Edition, 1997.

TRIP GENERATION BY MICROTRANS

**TRIP GENERATION**

To estimate the number of trips that would be generated by the proposed development, trip rates from the February 1995 Update to *TRIP GENERATION*, Fifth Edition, published by the Institute of Transportation Engineers, were used. Trip rates for ITE land-use code 844, *Gasoline/Service Station*, were selected. Trip rates for land-use code 845, *Gasoline/Service Station with Conv. Market*, shows a slightly lower trip generation rate and to provide a conservative analysis, land-use code 845 was not used.

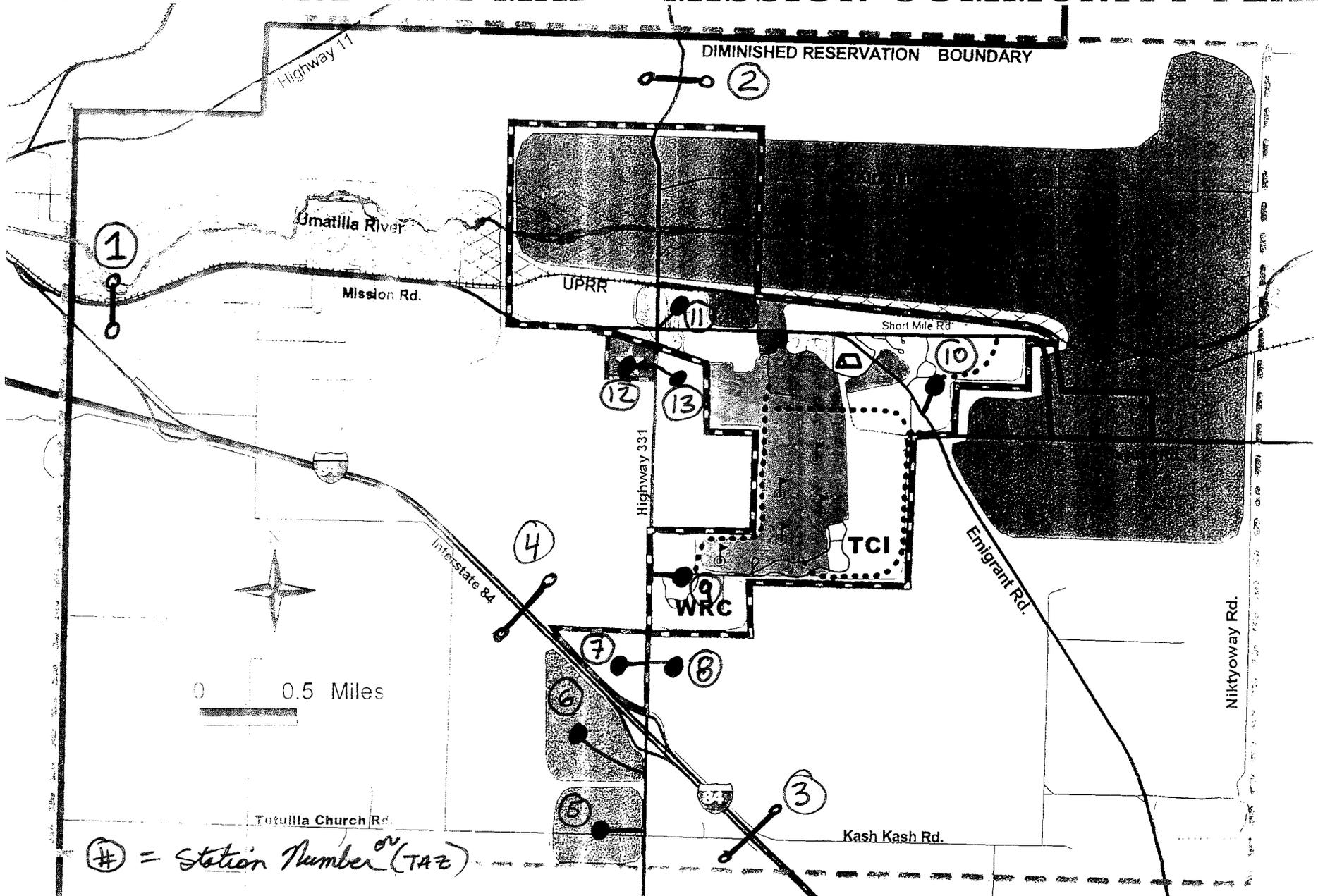
Trip generation rates are based on volume counts taken at the driveways to the site being studied. Some trips are attracted from the passing traffic on adjacent streets - that is, traffic already "passing by" the site. Thus when forecasting trips based on the trip generation rates, some reduction is made to account for those trips that are already there that will be attracted to the proposed development. Due to the rural nature of the site and the low population of the city of Stanfield, it is expected that about 80% of the trips will be pass-by trips. The pass-by trips on I-84 would still be considered new trips on the Umatilla-Stanfield Highway and were added to the existing traffic.

Due to the absence of public transit service to the site, it will be assumed in this report that none of the trips projected to be generated by the development will be made by public transit.

Trip generation calculations are shown in the appendix. The following table summarizes the trips projected to be generated by the proposed development.

<b>TRIP GENERATION SUMMARY</b>			
<b>Pilot Travel Center</b>			
	Entering	Exiting	Total
AM Peak Hour	89	85	174
PM Peak Hour	140	135	275
Daily	1398	1398	2796

# FUTURE LAND USE MAP -- MISSION COMMUNITY PLAN



① = Station Number (TAZ)

## FUTURE LAND USE DESIGNATIONS

- |                       |                                |
|-----------------------|--------------------------------|
| AGRICULTURE/RURAL     | HEALTH/EDUCATION/CULTURE       |
| COMMUNITY COMMERCIAL  | LIGHT INDUSTRIAL/MANUFACTURING |
| COMMUNITY RESIDENTIAL | OPEN SPACE                     |
| GENERAL RURAL         | RURAL RESIDENTIAL              |
| GOVERNMENT            | TOURIST/COMMERCIAL             |

- |                                          |                                     |
|------------------------------------------|-------------------------------------|
| MISSION COMMUNITY PLANNING AREA BOUNDARY | TRIBAL WATER/SEWER SERVICE BOUNDARY |
| FUTURE WATER/SEWER BOUNDARY EXPANSION    |                                     |

- |                                 |                       |
|---------------------------------|-----------------------|
| DIMINISHED RESERVATION BOUNDARY | WILDHORSE GOLF COURSE |
| UMATILLA RIVER FLOODPLAIN       | FUTURE ROADS          |
| TRIBAL CAPITAL                  |                       |

TAZ	Housing Trips			Business Trips		
	Origin	Dest.	Total	Origin	Dest.	Total
1	114	213	327	-	-	0
2	77	144	221	-	-	0
3	42	78	120	-	-	0
4	135	253	388	-	-	0
5	18	32	50	-	-	0
6	-	-	0	216	62	278
7	-	-	0	81	82	163
8	-	-	0	252	161	413
9	-	-	0	65	54	119
10	36	64	100	-	-	0
11	-	-	0	53	51	104
12	18	32	50	-	-	0
13	-	-	0	148	30	178
<b>Total</b>	<b>440</b>	<b>816</b>	<b>1256</b>	<b>815</b>	<b>440</b>	<b>1255</b>

Home-to-Work Trips		
Origin	Dest.	Total
114	-	327
77	-	221
42	-	120
135	-	388
18	-	50
-	62	278
-	82	163
-	161	413
-	54	119
36	-	100
-	51	104
18	-	50
-	30	178
<b>440</b>	<b>440</b>	<b>880</b>

Work-to-Home Trips		
Origin	Dest.	Total
-	213	327
-	144	221
-	78	120
-	253	388
-	32	50
216	-	278
81	-	163
252	-	413
65	-	119
-	64	100
53	-	104
-	32	50
148	-	178
<b>815</b>	<b>816</b>	<b>1631</b>

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*The trip generation estimates for the proposed truck stop were underestimated and adjustments were made later to account for 222 entering trips, 216 exiting trips and 438 total trips during the PM peak hour. The distribution of ~~these~~ additional trips was based on existing traffic patterns observed at the 6 count locations along Highway 331.*

Future Traffic Forecast For the CTUIR TSP and Highway 331 Corridor Refinement Plan

TAZ	Housing Trips			Business Trips		
	Origin	Dest.	Total	Origin	Dest.	Total
1	114	213	327	-	-	0
2	77	144	221	-	-	0
3	42	78	120	-	-	0
4	135	253	388	-	-	0
5	18	32	50	-	-	0
6	-	-	0	216	62	278
7	-	-	0	81	82	163
8	-	-	0	252	161	413
9	-	-	0	65	54	119
10	36	64	100	-	-	0
11	-	-	0	53	51	104
12	18	32	50	-	-	0
13	-	-	0	148	30	178
<b>Total</b>	<b>440</b>	<b>816</b>	<b>1256</b>	<b>815</b>	<b>440</b>	<b>1255</b>

Work-to-Home Trips		
Origin	Dest.	Total
-	213	327
-	144	221
-	78	120
-	253	388
-	32	50
216	-	278
81	-	163
252	-	413
65	-	119
-	64	100
53	-	104
-	32	50
148	-	178
<b>815</b>	<b>816</b>	<b>1631</b>

Work-to-Home Trips		
Origin	Dest.	Total
-	213	327
-	144	221
-	78	120
-	253	388
-	32	50
216	-	278
81	-	163
252	-	413
65	-	119
-	64	100
53	-	104
-	32	50
148	-	178
<b>815</b>	<b>816</b>	<b>1631</b>

**Home to Work Trip Distribution**

Orig.	Dest.	0	0	0	0	0	62	82	161	54	0	51	0	30		Total Check
TAZ	TAZ	1	2	3	4	5	6	7	8	9	10	11	12	13		
114	1					0	16	21	42	14	0	13	0	8		114
77	2					0	11	14	28	9	0	9	0	5		77
42	3					0	6	8	15	5	0	5	0	3		42
135	4					0	19	25	49	17	0	16	0	9		135
18	5	0	0	0	0	0	3	3	7	2	0	2	0	1	18	18
0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	10	0	0	0	0	0	5	7	13	4	0	4	0	2	36	36
0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	12	0	0	0	0	0	3	3	7	2	0	2	0	1	18	18
0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						0	10	13	26	9	0	8	0	5		
Total Check		0	0	0	0	0	62	82	161	54	0	51	0	30		

**Home to Work Trip Distribution (Revised)**

Orig.	Dest.	1	2	3	4	5	6	7	8	9	10	11	12	13		Total Check
TAZ	TAZ	1	2	3	4	5	6	7	8	9	10	11	12	13		
114	1					0	16	21	42	14	0	13	0	8		114
77	2					0	11	14	28	9	0	9	0	5		77
42	3					0	6	8	15	5	0	5	0	3		42
135	4					0	19	25	49	17	0	16	0	9		135
18	5	0	0	0	0	0	3	3	7	2	0	2	0	1	18	18
0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	10	0	0	0	0	0	5	7	13	4	0	4	0	2	36	36
0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	12	0	0	0	0	0	3	3	7	2	0	2	0	1	18	18
0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
						0	10	13	26	9	0	8	0	5		
Total Check		0	0	0	0	0	62	82	161	54	0	51	0	30		

\*- Bold numbers indicate where traffic was removed from TAZ 1 and added to TAZ 4.  
 This was done because the fastest route to and from TAZ's 6, 7, and 8 (area around I-84/Hwy 331 interchange) is along US Hwy 30 and I-84 rather than along Mission Road.

**Work to Home Trip Distribution**

Orig.	TAZ	1	2	3	4	5	6	7	8	9	10	11	12	13	Total Check
0	1					0	0	0	0	0	0	0	0	0	0
0	2					0	0	0	0	0	0	0	0	0	0
0	3					0	0	0	0	0	0	0	0	0	0
0	4					0	0	0	0	0	0	0	0	0	0
0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
216	6	56	38	21	67	8	0	0	0	0	17	0	8	0	34
81	7	21	14	8	25	3	0	0	0	0	6	0	3	0	13
252	8	66	45	24	78	10	0	0	0	0	20	0	10	0	39
65	9	17	11	6	20	3	0	0	0	0	5	0	3	0	10
0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	11	14	9	5	16	2	0	0	0	0	4	0	2	0	8
0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	13	39	26	14	46	6	0	0	0	0	12	0	6	0	23

32 0 0 0 0 64 0 32 0 I-I

Total  
Check 213 144 78 253 32 0 0 0 0 64 0 32 0

**Work to Home Trip Distribution (Revised)**

Orig.	TAZ	1	2	3	4	5	6	7	8	9	10	11	12	13	Total Check
1	1					0	0	0	0	0	0	0	0	0	0
2	2					0	0	0	0	0	0	0	0	0	0
3	3					0	0	0	0	0	0	0	0	0	0
4	4					0	0	0	0	0	0	0	0	0	0
5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	6	0	38	21	<b>123</b>	8	0	0	0	0	17	0	8	0	215
7	7	0	14	8	<b>46</b>	3	0	0	0	0	6	0	3	0	81
8	8	0	45	24	<b>144</b>	10	0	0	0	0	20	0	10	0	252
9	9	17	11	6	20	3	0	0	0	0	5	0	3	0	65
10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	11	14	9	5	16	2	0	0	0	0	4	0	2	0	53
12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	13	39	26	14	46	6	0	0	0	0	12	0	6	0	148
		70	144	78	396	32	0	0	0	0	64	0	32	0	

\*- Bold numbers indicate where traffic was removed from TAZ 1 and added to TAZ 4. This was done because the fastest route to and from TAZ's 6, 7, and 8 (area around I-84/Hwy 331 interchange) is along US Hwy 30 and I-84 rather than along Mission Road.

**Total Plans to be Assigned**

		Fiscal Year													
		1967	1	2	3	4	5	6	7	8	9	10	11	12	13
Originator	1														
	2														
	3														
	4														
	5														
	6														
	7														
	8														
	9														
	10														
	11														
	12														
	13														

70 171 83 417 32 62 82 161 54 64 51 32 30  
1306

**UNIT COSTS FOR TRANSPORTATION FACILITY  
IMPROVEMENTS**

## Unit Costs for Transportation Facility Improvements

### Improvement Type

#### Pedestrian

Sidewalks (One side of road at 6-foot width)	\$30/ linear foot
Striping for Crosswalks	\$3/ linear foot
Pedestrian/bicycle Bridge (8-feet wide)	\$450/ linear foot
Multi-use Path (Paved at 8-foot width)	\$15/linear foot

#### Bicycle

Widen Road to Provide Shoulder Bikeway (Both sides)	\$300,000/ mile
-----------------------------------------------------	-----------------

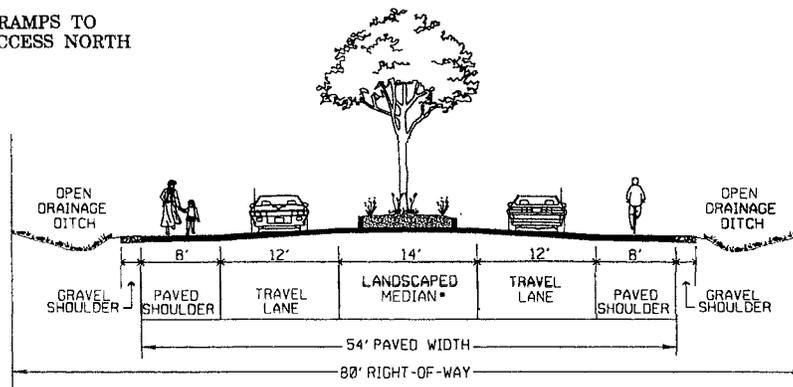
#### Roadway

Sign	\$200/ sign
New Traffic Signal	\$150,000/ signal
Intersection Improvements (additional lanes, new access)	\$50,000/ approach
Pave at-grade railroad crossing with asphalt	\$2,500/ crossing
Add gravel to existing roadway with minor widening, alignment, and shoulder improvements	\$105,000/ mile
Add pavement to existing gravel roadway with minor widening, alignment, and shoulder improvements	\$200,000/ mile
Repave roadway with minor widening, alignment, and shoulder improvements	\$157,000/ mile
Widen to two 12-foot lanes including a 14-foot center median and 8-foot paved shoulders.	\$700,000/ mile
Widen to two 12-foot lanes including a 14-foot center median, 6-foot bike lanes, curb and gutter, and sidewalks	\$1,800,000/ mile
Construct new rural two-lane road with paved shoulders	\$1,100,000/ mile
Construct new urban two-lane road with curb, gutter, and sidewalks.	\$2,000,000/ mile

Note: Costs do not include special engineering problems such as steep grades, retaining walls, extensive drainage, and impacts to adjacent roads that increase costs. Land acquisition is not included.

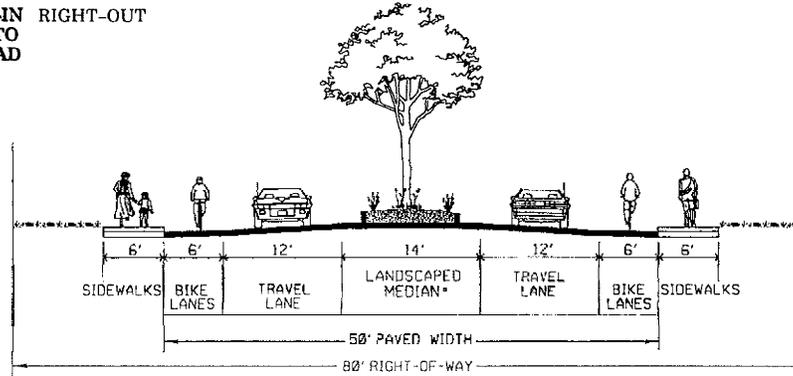
# **ROADWAY DESIGN STANDARDS**

**OPTION 1: FROM I-84 WESTBOUND RAMPS TO PROPOSED RIGHT-IN RIGHT-OUT ACCESS NORTH OF INTERCHANGE**



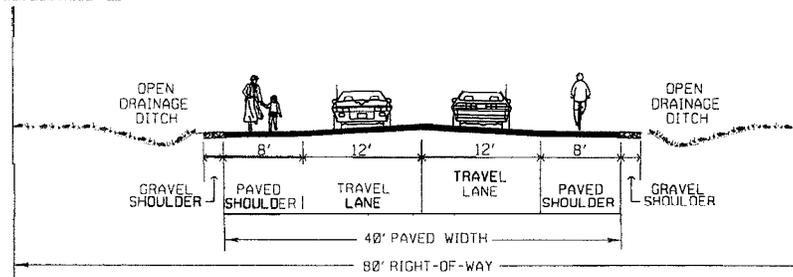
\*- 14-foot left-turn lane provided at approaches to major intersections

**OPTION 2: FROM PROPOSED RIGHT-IN RIGHT-OUT ACCESS NORTH OF INTERCHANGE TO WILDHORSE RESORT ENTRANCE ROAD**



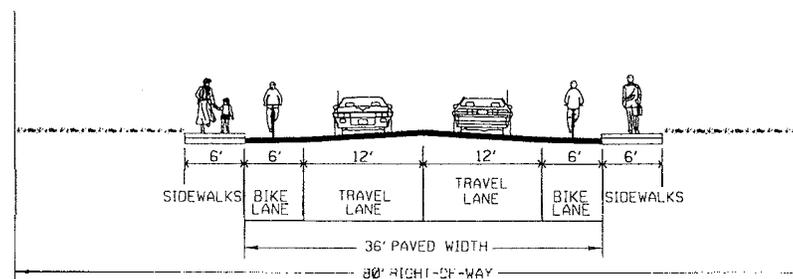
\*- 14-foot left-turn lane provided at approaches to major intersections

**OPTION 3: FROM WILDHORSE RESORT ENTRANCE ROAD TO PROPOSED INTERSECTION SOUTH OF MISSION ROAD AND FROM MISSION ROAD TO OR HIGHWAY 11**



\*- 14-foot left-turn lane provided at approaches to major intersections

**OPTION 4: FROM THE PROPOSED INTERSECTION SOUTH OF MISSION ROAD TO MISSION ROAD**



\*- 14-foot left-turn lane provided at approaches to major intersections



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**FIGURE**  
**Highway 331**  
**Design Standards**

Highway 331 Corridor Plan

# BIA, CTOIR

## A. SELECTION CHART FOR CLASS 2 ROUTES.

ADEQUACY DESIGN STANDARD NO.	1	2	3	4	5	6
FUNCTIONAL CLASSIFICATION	2	2	2	2	2	2
AVERAGE DAILY TRAFFIC (ADT YR + 20)	OVER 1,000			400 - 1,000		
TERRAIN	(1) FLAT	(2) ROLL	(3) MTN	(1) FLAT	(2) ROLL	(3) MTN
DESIGN SPEED.....(MPH)	70	60	50	60	50	45
MAXIMUM GRADE.....(%)	2	4	6	3	5	7
MAXIMUM CURVATURE.....(°)	3	4	7	4	6	10
STOPPING SIGHT DISTANCE..(FT)	600	475	350	475	350	325
PASSING SIGHT DISTANCE...(FT)	2500	2100	1800	2100	1800	1700
NUMBER OF LANES.....(NO)	2	2	2	2	2	2
SURFACE TYPE.....	HIGH			HIGH		
SURFACE WIDTH.....(FT)	24	24	24	24	24	24
SHOULDER TYPE.....	PAVED			PAVED		
SHOULDER WIDTH.....(FT)	10	10	10	8	8	8
ROADWAY WIDTH.....(FT)	44	44	44	40	40	40
RIGHT-OF-WAY WIDTH.....(FT)	120	150	200	100	150	200
INTERSECTION TREATMENT.....	AT GRADE					
RAILROAD CROSSING PROTECTION.	AT GRADE-AUTOMATIC PROTECTION					

ADEQUACY DESIGN STANDARD NO.	7	8	9
FUNCTIONAL CLASSIFICATION	2	2	2
AVERAGE DAILY TRAFFIC (ADT YR + 20)	UNDER 400		
TERRAIN	(1) FLAT	(2) ROLL	(3) MTN
DESIGN SPEED.....(MPH)	55	50	45
MAXIMUM GRADE.....(%)	4	6	8
MAXIMUM CURVATURE.....(°)	6	7	12
STOPPING SIGHT DISTANCE..(FT)	425	350	325
PASSING SIGHT DISTANCE...(FT)	2000	1800	1700
NUMBER OF LANES.....(NO)	2	2	2
SURFACE TYPE.....	HIGH		
SURFACE WIDTH.....(FT)	24	24	24
SHOULDER TYPE.....	PAVED		
SHOULDER WIDTH.....(FT)	4	4	4
ROADWAY WIDTH.....(FT)	32	32	32
RIGHT-OF-WAY WIDTH.....(FT)	100	120	150
INTERSECTION TREATMENT.....	AT GRADE		
RAILROAD CROSSING PROTECTION.	(SEE ABOVE)		

BIA, CTUIC

**B. SELECTION CHART FOR CLASS 4 ROUTES.**

ADEQUACY DESIGN STANDARD NO.	10	11	12	13	14	15
FUNCTIONAL CLASSIFICATION	4	4	4	4	4	4
AVERAGE DAILY TRAFFIC (ADT YR + 20)	OVER 400			100 - 400		
TERRAIN	(1) FLAT	(2) ROLL	(3) MTH	(1) FLAT	(2) ROLL	(3) MTH
DESIGN.....(MPH)	60	50	40	60	50	40
MAXIMUM GRADE.....(%)	4	6	7	4	7	9
MAXIMUM CURVATURE.....(°)	5	7	12	6	8	14
STOPPING SIGHT DISTANCE...(FT)	475	350	275	475	350	275
PASSING SIGHT DISTANCE...(FT)	2100	1800	1500	2100	1800	1500
NUMBER OF LANES.....(NO)	2	2	2	2	2	2
SURFACE TYPE.....	PAVED			PAVED		
SURFACE WIDTH.....(FT)	24	24	24	24	24	24
SHOULDER TYPE.....	PAVED			STABILIZED		
SHOULDER WIDTH.....(FT)	8	8	8	4	4	4
ROADWAY WIDTH.....(FT)	40	40	40	32	32	32
RIGHT-OF-WAY WIDTH.....(FT)	100	120	150	100	100	100
INTERSECTION TREATMENT.....	AT GRADE					
RAILROAD CROSSING PROTECTION.	AT GRADE-AUTOMATIC PROTECTION					

ADEQUACY DESIGN STANDARD NO.	16	17	18	19	20	21
FUNCTIONAL CLASSIFICATION	4	4	4	4	4	4
AVERAGE DAILY TRAFFIC (ADT YR + 20)	50 - 99			UNDER 50		
TERRAIN	(1) FLAT	(2) ROLL	(3) MTH	(1) FLAT	(2) ROLL	(3) MTH
DESIGN SPEED.....(MPH)	50	45	35	40	35	30
MAXIMUM GRADE.....(%)	4	7	9	6	8	10
MAXIMUM CURVATURE.....(°)	8	12	20	15	20	23
STOPPING SIGHT DISTANCE...(FT)	350	325	200	275	200	200
PASSING SIGHT DISTANCE...(FT)	1800	1600	1200	1500	1200	1100
NUMBER OF LANES.....(NO)	2	2	2	2	2	2
SURFACE TYPE.....	GRAVEL or EARTH			GRAVEL or		
SURFACE WIDTH.....(FT)	22	22	22	20	20	20
SHOULDER TYPE.....	EARTH			EARTH		
SHOULDER WIDTH.....(FT)						
ROADWAY WIDTH.....(FT)	26	26	26	24	24	24
RIGHT-OF-WAY WIDTH.....(FT)	80	100	100	80	80	100
INTERSECTION TREATMENT.....	AT GRADE					
RAILROAD CROSSING PROTECTION.	AT GRADE AUTO. PROT., X-BUCK & AUDIBLE SIGNAL					

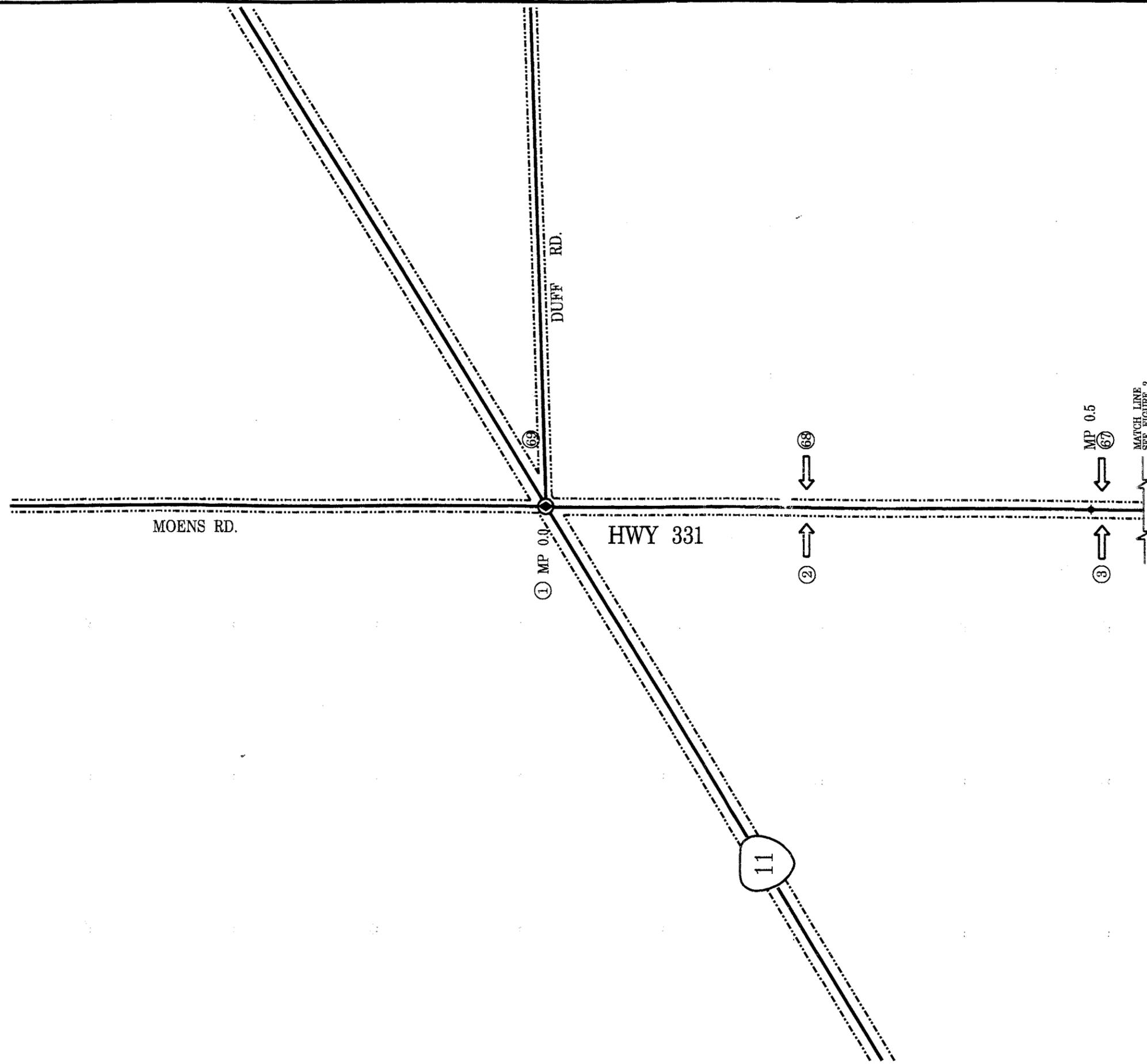
# **HIGHWAY 331 ACCESS MANAGEMENT PLAN**

**HWY 331 FUTURE ACCESS INVENTORY**

Access Identifier Number	Direction	Highway Milepost	Driveway	Road	Driveway Use or Road Name	Distance to Previous Access (ft)	Distance to Next Access (ft)	Meets OHP Spacing Standards	Comments
1	SB	0.00		X	HWY 11		1,267	Y	
2	SB	0.24	X		Agriculture	1,267	1,426	Y	
3	SB	0.51	X		Agriculture	1,426	1,267	Y	
4	SB	0.75	X		Agriculture	1,267	1,426	Y	
5	SB	1.02	X		Agriculture	1,426	3,274	Y	
6	SB	1.64	X		House	3,274	634	N	
7	SB	1.76	X		House	634	422	N	
8	SB	1.84	X		House	422	1,003	N	
	SB	2.02	~~~~~	~~~~~	Umatilla River				
9	SB	2.03	X		House	1,003	284	N	
10	SB	2.08	X		House	264	211	N	
11	SB	2.12	X		House	211	634	N	
12	SB	2.24	X		House	634	106	N	
13	SB	2.26	X		House	106	53	N	
14	SB	2.27		X	Showaway Lane	53	264	N	
	SB	2.29	+++++	+++++	Railroad Crossing				
15	SB	2.32	X		Open industrial area	264	1,003	N	-Shared Access
16	SB	2.51		X	Mission Road	1,003	158	N	
17	SB	2.54	X		Abandoned House/ Rest Stop	158	1,003	N	
18	SB	2.73		X	Future East-West Connector Road	1,003	1,848	Y	-New
19	SB	3.08	X		Agriculture	1,848	1,637	Y	
20	SB	3.39	X		Agriculture	1,637	3,274	Y	
21	SB	3.97	X		Open Agricultural/ Industrial area				-Removed
21-A	SB	4.01		X	Future Road Opposite Employee Entrance	3,274	900	Y	-New
22	SB	4.02		X	Dirt Road (with Public ROW)				-Removed
22-A	SB	4.18	X		Future Tourist Commercial Use	900	330	Y	-New
22-B	SB	4.24	X		Future Tourist Commercial Use	330	990	Y	-New (right in/right out)
23	SB	4.33	X		Abandoned House				-Removed
24	SB	4.43		X	I-84 WB Ramps	990	950	Y	
25	SB	4.61		X	I-84 EB Ramps	950	1,373	Y	
26	SB	4.70		X	Dead End Road to Transfer Station				-Removed
26-A	SB	4.87		X	Dead End Road to Transfer Station	1,373	845	Y	-New
27	SB	5.03		X	Tutuilla Church Road	845		Y	
28	NB	5.03		X	Tutuilla Church Road		2,218	Y	
29	NB	4.61		X	I-84 EB Ramps	2,218	950	Y	
30	NB	4.43		X	I-84 WB Ramps	950	750	Y	
31	NB	4.41		X	Kash-Kash Road				-Removed
32	NB	4.33	X		Texaco Gas Station/ Truck Stop				-Removed
33	NB	4.32	X		Texaco Gas Station/ Truck Stop				-Removed
34	NB	4.29	X		Future Tourist Commercial Use	750	570	Y	-Modified (right in/right out)
35	NB	4.24	X		Cody's Restaurant				-Removed
36	NB	4.20	X		Cody's Restaurant/ Truck Parking Lot				-Removed
36-A	NB	4.18		X	Kash-Kash Road (realigned)	570	900	Y	-New
37	NB	4.14	X		Truck Parking Lot				-Removed
38	NB	4.01		X	Wild Horse Employee Entrance Road	900	1,478	Y	
39	NB	3.73		X	Wild Horse Resort Main Entrance Road	1,478	1,056	Y	
39-A	NB	3.53	X		Future Tourist Commercial Use	1,056	739	Y	-New
40	NB	3.51	X		Agriculture				-Removed
41	NB	3.39	X		Agriculture	739	1,478	Y	
42	NB	3.11	X		Agriculture	1,478	898	Y	
43	NB	2.94	X		Agriculture	898	1,109	Y	
44	NB	2.76	X		Agriculture				-Removed
44-A	NB	2.73		X	Future East-West Connector Road	1,109	1,003	Y	-New
45	NB	2.54	X		House	1,003	158	N	
46	NB	2.51		X	Mission Road	158	211	N	
47	NB	2.49	X		Vacant Commercial Site				-Removed
47-A	NB	2.47	X		Future Community Commercial Use	211	158	N	-New
48	NB	2.46	X		Vacant Commercial Site				-Removed
49	NB	2.44	X		House	158	106	N	
50	NB	2.42	X		House	106	106	N	
51	NB	2.40	X		House	106	53	N	
52	NB	2.39	X		House	53	158	N	
53	NB	2.36	X		House	158	53	N	
54	NB	2.35	X		House	53	106	N	
55	NB	2.33	X		House	106	106	N	
56	NB	2.31	X		Railroad Industrial Site	106	158	N	
	NB	2.29	+++++	+++++	Railroad Crossing				
57	NB	2.28	X		House	158	264	N	
58	NB	2.23	X		House	264	158	N	
59	NB	2.20	X		House	158	211	N	
60	NB	2.16		X	Marlowe Road	211	1,531	N	
	NB	2.02	~~~~~	~~~~~	Umatilla River				
61	NB	1.87	X		House	1,531	264	N	
62	NB	1.82		X	Kirkpatrick Road	264	845	N	
63	NB	1.66	X		Agricultural	845	896	Y	
64	NB	1.49	X		House	896	2,640	Y	
65	NB	0.99	X		Agriculture	2,640	1,267	Y	
66	NB	0.75	X		Agriculture	1,267	1,267	Y	
67	NB	0.51	X		Agriculture	1,267	1,426	Y	
68	NB	0.24	X		Agriculture	1,426	1,267	Y	
69	NB	0.00		X	HWY 11/Duff Road	1,267		Y	

<b>Summary:</b>	
Total Access Points	63
Total Meeting OHP Spacing Standards	34 (54%)

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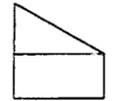


(Scale: 1" = 500')

**ACCESS LEGEND:**

-  Remove Existing Intersection
-  Existing Intersection
-  New Intersection
-  Remove Existing Driveway Approach
-  Existing Driveway Approach
-  New Driveway Approach
-  Remove Existing Road
-  Existing Road
-  New Road
-  Milepoint Marker
-  Right-of-Way Line
-  Reservation of Access Points
-  Access Control Line
-  Access Identifier Number  
(See Inventory Spreadsheet)

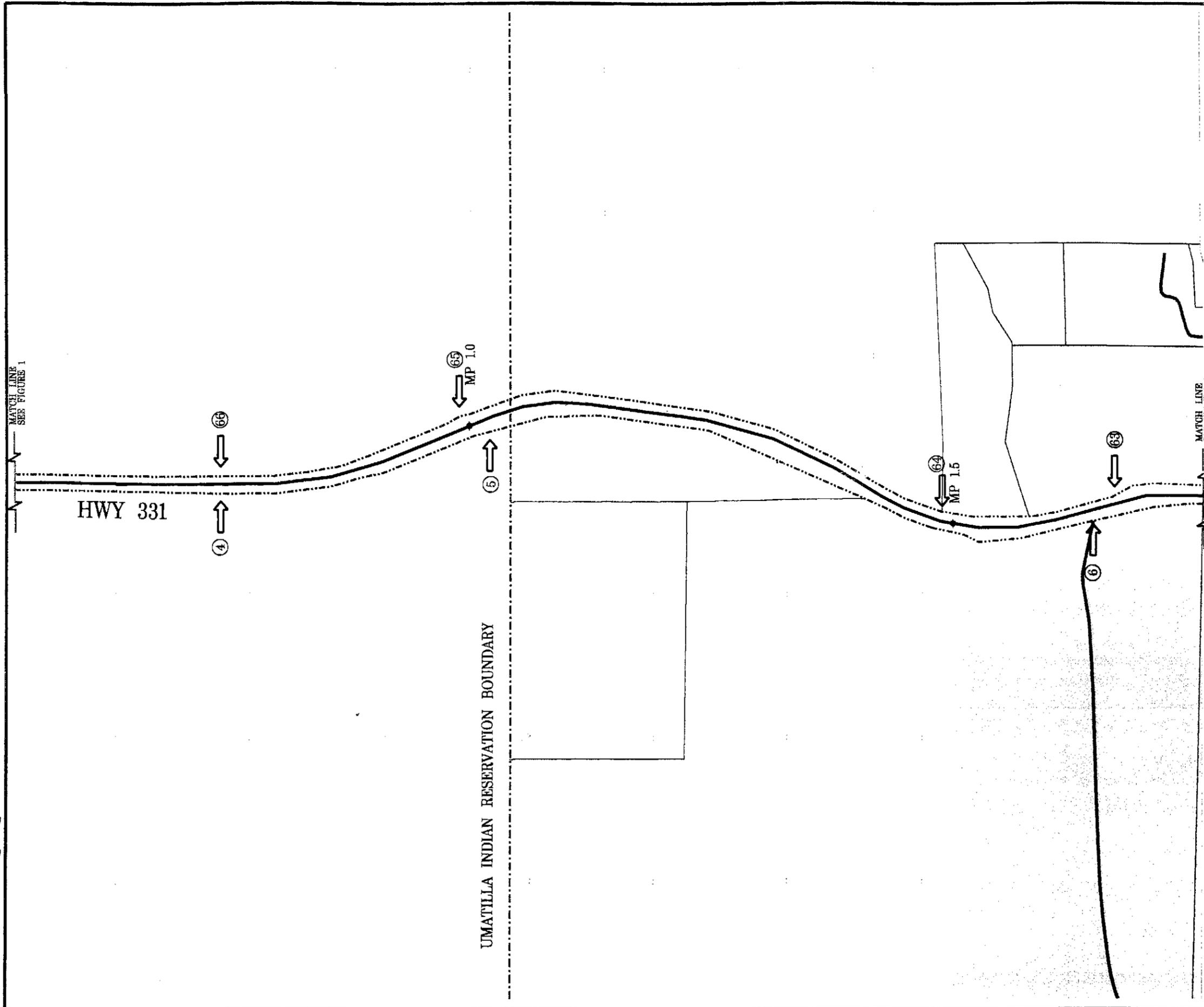
**LAND USE LEGEND:**

-  Rural/Agricultural
-  Rural Residential
-  Community Commercial
-  Community Residential
-  Government
-  Tourist Commercial
-  Open Space
-  Light Industrial/Manufacturing
-  Parcel Boundary

**FIGURE 1**

**Access Management Plan and  
Future Land Use for  
the Highway 331 Corridor  
(Segment 1 of 5)**

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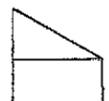
  
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 PORTLAND, OR 97201-4830 (503) 243-6663


**NORTH**  
 (Scale: 1" = 500')

**ACCESS LEGEND:**

-  Remove Existing Intersection
-  Existing Intersection
-  New Intersection
-  Remove Existing Driveway Approach
-  Existing Driveway Approach
-  New Driveway Approach
-  Remove Existing Road
-  Existing Road
-  New Road
-  Milepoint Marker
-  Right-of-Way Line
-  Reservation of Access Points
-  Access Control Line
-  Access Identifier Number  
(See Inventory Spreadsheet)

**LAND USE LEGEND:**

 Rural/Agricultural	 Parcel Boundary
 Rural Residential	
 Community Commercial	
 Community Residential	
 Government	
 Tourist Commercial	
 Open Space	
 Light Industrial/Manufacturing	

**FIGURE 2**  
 Access Management Plan and  
 Future Land Use for  
 the Highway 331 Corridor  
 (Segment 2 of 5)

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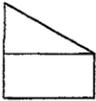
 NORTH  
 (Scale: 1" = 500')

**ACCESS LEGEND:**

-  Remove Existing Intersection
-  Existing Intersection
-  New Intersection
-  Remove Existing Driveway Approach
-  Existing Driveway Approach
-  New Driveway Approach
-  Remove Existing Road
-  Existing Road
-  New Road
-  Milepoint Marker
-  Right-of-Way Line
-  Reservation of Access Points
-  Access Control Line
-  Access Identifier Number (See Inventory Spreadsheet)

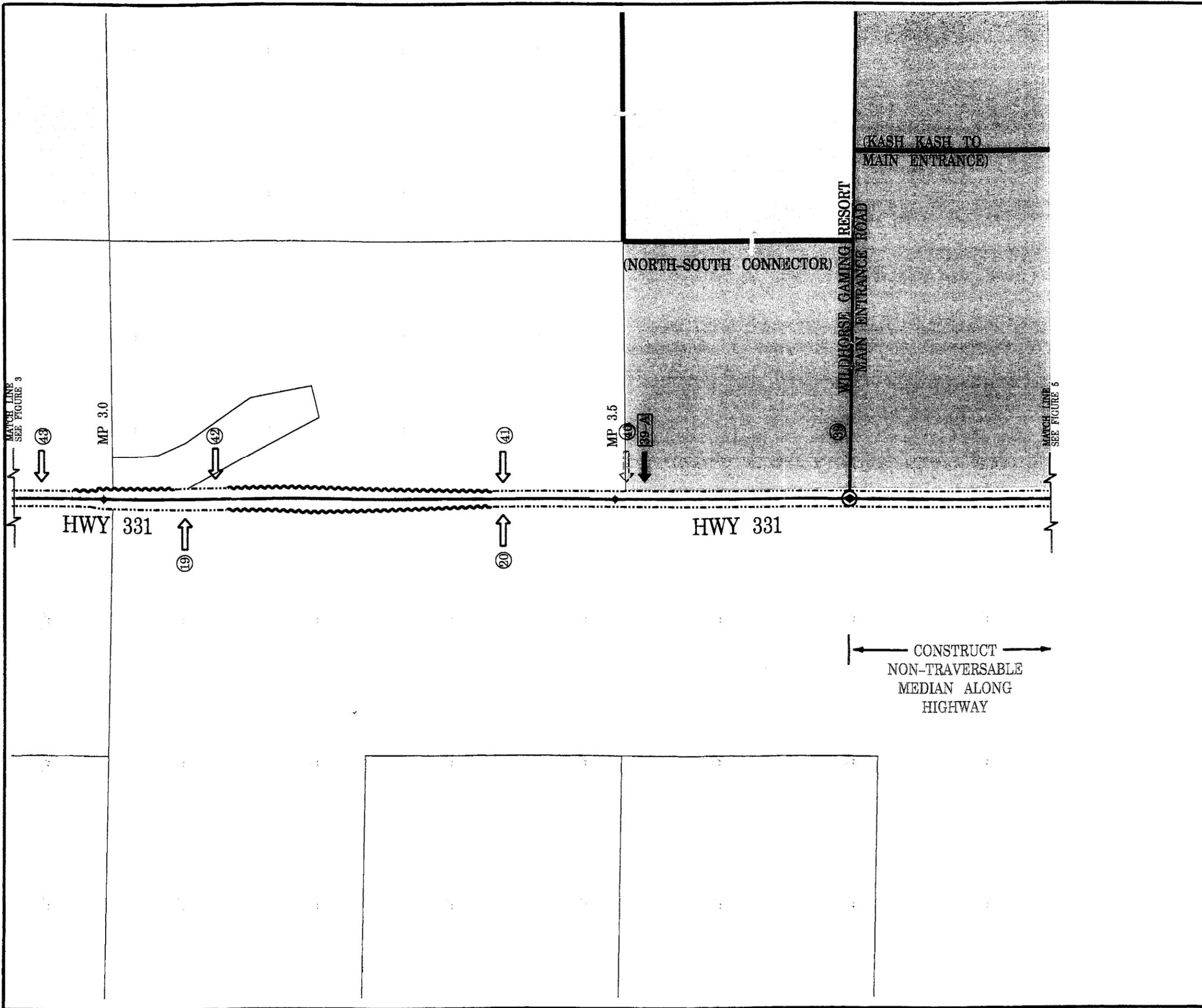
**LAND USE LEGEND:**

	Rural/Agricultural	
	Rural Residential	
	Community Commercial	
	Community Residential	
	Government	
	Tourist Commercial	
	Open Space	
	Light Industrial/Manufacturing	

 Parcel Boundary

**FIGURE 3**  
 Access Management Plan and Future Land Use for the Highway 331 Corridor (Segment 3 of 5)

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 PORTLAND, OR 97201-4830 (503) 223-6663



(Scale: 1" = 500')

**ACCESS LEGEND:**

- Remove Existing Intersection
- Existing Intersection
- New Intersection
- Remove Existing Driveway Approach
- Existing Driveway Approach
- New Driveway Approach
- Remove Existing Road
- Existing Road
- New Road
- Milepoint Marker
- Right-of-Way Line
- Reservation of Access Points
- Access Control Line
- Access Identifier Number (See Inventory Spreadsheet)

**LAND USE LEGEND:**

- Rural/Agricultural
- Rural Residential
- Community Commercial
- Community Residential
- Government
- Tourist Commercial
- Open Space
- Light Industrial/Manufacturing
- Parcel Boundary

**FIGURE 4**  
 Access Management Plan and  
 Future Land Use for  
 the Highway 331 Corridor  
 (Segment 4 of 5)



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PORTLAND, OR 97201-4830 (503) 223-6663



(Scale: 1" = 500')

ACCESS LEGEND:

- Remove Existing Intersection
- Existing Intersection
- New Intersection
- Remove Existing Driveway Approach
- Existing Driveway Approach
- New Driveway Approach
- Remove Existing Road
- Existing Road
- New Road
- Milepoint Marker
- Right-of-Way Line
- Reservation of Access Points
- Access Control Line
- Access Identifier Number  
(See Inventory Spreadsheet)

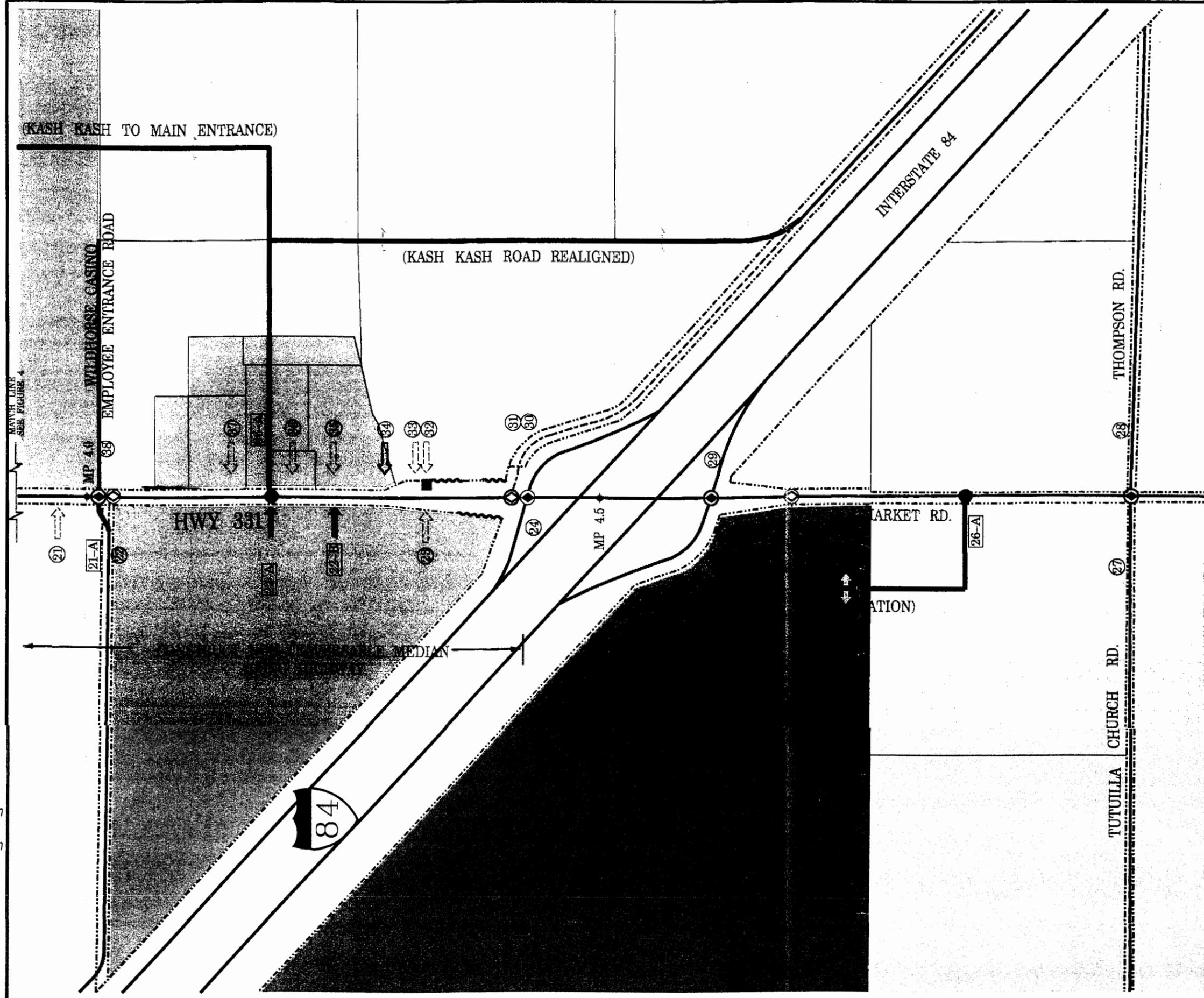
LAND USE LEGEND:

- Rural/Agricultural
- Rural Residential
- Community Commercial
- Community Residential
- Government
- Tourist Commercial
- Open Space
- Light Industrial/Manufacturing
- Parcel Boundary

FIGURE 5

Access Management Plan and  
Future Land Use for  
the Highway 331 Corridor  
(Segment 5 of 5)

Highway 331 Corridor Refinement Plan



CTU10000-0001/rutfig5.dgn/R5LP/08-29-00

**FTA SECTION 5311 FUNDING FOR TRANSIT SERVICES**

## **POTENTIAL DEVELOPMENTAL PROJECT CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION**

### Funding Available

\$56,538 in funding from FTA Section 5311 Funding has been obligated for the Umatilla Tribes for a developmental project.

Funds can be used for operating expenses or capital expenses associated with a transit service.

A 50% match is required if funds are used for operating. The total project amount would be \$114,076, with \$56,538 the local match and \$56,538 the federal amount.

- A 20% match is required if funds are used for capital. The total project amount would be \$70,672, with \$14,134 local match and \$56,538 the federal amount.

The 5311 program funds "general public" transit services. Service design cannot be exclusive to a particular clientele, such as for elderly and disable persons only. There can be no "space available only" policies. It has to be open to all passengers on an equal basis.

### Federal and State Requirements

Grant recipients must:

- demonstrate legal, fiscal and managerial capacity to receive, manage and account for federal funds;
- be involved in transportation coordination efforts with other transit providers in the area;
- notify the public of intent to make application for a grant, and allow opportunity for the public to comment;
- comply with Civil Rights/ADA requirements on first day of service; all vehicles must be ADA accessible and meet other service requirements; paratransit services are required for fixed route, and deviated or modified fixed route
- meet Drug and Alcohol testing requirements on the first day of service; the service provider must have an approved drug and alcohol policy and testing program (approval done by Public Transit Division).
- Other federal requirements include (but are not limited to) charter bus and school bus provisions, contracting, equipment management and safety systems, and labor protections.

## Next Steps

- The Tribal Government should notify Public Transit Division if it wants to proceed with a project.
- Fill out an application for funding (new applications for 2000 will be out soon).
- Meet with Public Transit Division staff to discuss federal requirements and project implementation,

PTD 3/15/00

## **FEDERAL AND STATE FUNDING SOURCES**

# Transportation Funding Programs Available to Cities, Counties, Districts, and Other Agencies

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**NOTE:** This information provides an introduction to ODOT funded programs that are available to local agencies. While every effort has been made to compile accurate descriptions, this information is provided for convenience only and is not the official policy. Please contact the persons listed with programs of interest for more definitive information and official program guidance. Contact Gary Whitney, (503) 986-3921, with questions or comments on this document.

## Introduction

All of the following programs provide financial assistance to local agencies for transportation projects and related activities. The brief program descriptions are intended to give introductory information on selected characteristics of each program. Some of these programs are operated by ODOT while others are operated jointly with other State Agencies.

The program's source of funding, either federal or state, may be of particular interest to readers since the type of funding involved determines most of the program requirements. Federally funded programs are governed by strict federal requirements. Some of the relevant federal requirements are summarized within the program descriptions. More current and comprehensive information on federal requirements is available by following the links to the appropriate web site: for Federal Highways Administration, <http://www.fhwa.dot.gov/>; and for Federal Transit Administration, <http://www.fta.dot.gov/>. State-funded programs are primarily funded from state highway fund revenues. These expenditures are governed by the state Constitution and various state laws.

## Surface Transportation Program (STP)

All Oregon counties and most cities receive federal STP funds from ODOT. Incorporated cities of more than 5,000 population located outside the boundary of the Portland metropolitan area are eligible. (The Portland metropolitan area, through Metro, receives its own separate STP-Urban funds.)

Federal funds, including STP funds, may generally be used for any roads, including National Highway System (NHS) roads, that are not functionally classified as local roads or as rural minor collectors. These roads are collectively referred to as Federal-aid highways. Through the federal fiscal year 2003 (the duration of TEA-21 - the Transportation Equity Act of the 21<sup>st</sup> Century), cities will receive an estimated \$6.1 million a year and counties will receive an estimated \$9.1 million a year. Surface Transportation Program funds are among the most flexible of all federal funds.

<b><i>ODOT Contact</i></b>	503-986-3900, Funds & Grants, Financial Services Branch.
<b><i>Annual Amount</i></b>	During TEA-21: Counties receive \$9.1 million annually, and Cities receive \$6.1 million annually.
<b><i>Match Requirements</i></b>	TEA-21 requires a minimum match of 80/20: 80% STP funds matched with 20% local (non-federal) funds. Because Oregon has a relatively large amount of federal lands, it is a "sliding scale state". This means that the percentage of local match is reduced (from 20% to 10.27%) and the federal share increases (from 80% to 90.27%). Oregon's sliding scale ratio is 90.73/10.27.
<b><i>Program Rules</i></b>	Code of Federal Regulations (CFR) Title 23.
<b><i>Eligible Uses</i></b>	Federal-aid highway and bridge construction, maintenance, safety, planning, research, and transit capital.

- Eligible Recipients*** Counties and most cities (cities more than 5,000 population, and outside the Metro boundary are eligible).
- Project Selection Process*** Projects programmed for funding are listed in the State Transportation Improvement Program (STIP).

## **State and Local STP Fund Exchange Program**

Currently ODOT will exchange the local STP funds with state funds, allowing local governments to use less restrictive state dollars instead of federal dollars on their projects. Because state funds are not governed by Title 23 requirements and are more flexible and desirable, the federal funds trade at \$1.00 federal for \$.94 state funds.

## **STP Set Aside for Safety; Hazard Elimination Program (HEP)**

The mission of the Hazard Elimination Program (HEP) is to fund safety improvement projects that reduce the risk, number and/or severity of accidents. It is a federally funded program that is open to both Local Agencies and to ODOT

Projects should be funded primarily or exclusively using HEP funds and should not exceed \$500,000. Any public road or public transportation surface facility is eligible for funding, including improvements at public transportation facilities and public pedestrian and bicycle pathways and trails. The projects should be stand-alone projects and not portions of larger construction projects.

Types of eligible projects include:

- Signal Installation or Improvement
- Signal Priority Preemption
- Channelization
- Grade Separation
- Curve Realignment
- Illumination
- Pavement Markings
- Delineation
- Guardrail or Median Barrier
- Impact Attenuators
- Slope Flattening
- Fixed Object Removal
- Rockfall Correction
- Corridor Safety Improvements
- Bicycle Lanes
- Pedestrian Paths

***ODOT Application Contact*** Applications go to Region Federal-Aid Specialists or Region Traffic.

<b><i>ODOT Program Contact</i></b>	503-986-3609, Hazard Elimination Program Coordinator, Traffic Management Section, Technical Services Branch.
<b><i>Annual Amount</i></b>	During TEA-21, \$2,000,000/yr. is available statewide.
<b><i>Match Requirements</i></b>	The match ratio is 89.73/10.27, with 10.27% being local (non-federal) funds.
<b><i>Program Rules</i></b>	23 U.S.C. 152.
<b><i>Eligible Uses</i></b>	See list above.
<b><i>Eligible Recipients</i></b>	Counties, cities and ODOT.
<b><i>Project Selection Process</i></b>	See the program guidebook available from ODOT Contact.

## Transportation Enhancement Program

States are required to apportion 10% of their Surface Transportation Program funds to the Enhancement Program. These funds are available for a variety of projects that enhance the cultural, esthetic, and environmental value of the state's transportation system. Projects may include:

- pedestrian & bicycle facilities
- safety and educational activities for pedestrians and bicyclists
- acquisition of scenic easements and scenic or historic sites
- scenic or historic highway programs (including provision of tourist and welcome center facilities)
- landscaping and other scenic beautification
- historic preservation
- rehabilitation and operation of historic transportation buildings, structures or facilities (including historic railroad facilities and canals)
- preservation of abandoned railway corridors (including conversion and use for pedestrian or bicycle trails)
- control and removal of outdoor advertising
- archaeological planning and research
- mitigation to address water pollution due to highway runoff
- mitigation to reduce vehicle-caused wildlife mortality, while maintaining habitat connectivity, and
- establishment of transportation museums

TEA-21 will provide Oregon up to \$8 million annually. ODOT will allocate \$5 million per year to local governments and other public agencies for "local program" projects, and \$2 million to \$3 million annually to a "statewide" program for projects having regional, multi-regional or statewide significance. The Statewide Program is open to ODOT and other public agencies.

<b><i>ODOT Contact</i></b>	503-986-3528, Transportation Enhancement Coordinator, Preliminary Design Unit, Technical Services Branch.
<b><i>Annual Amount</i></b>	\$5 million annually to the Local Program; and \$2 to \$3 million annually to the Statewide Program.

<b>Match Requirements</b>	89.73% maximum federal share. Minimum of 10.27% matching funds from the project sponsor, in cash or approved in-kind contribution.
<b>Program Rules</b>	Code of Federal Regulations (CFR) Title 23.
<b>Eligible Uses</b>	Transportation enhancement activities (defined in 23 USC 101(a)).
<b>Eligible Recipients</b>	Public Agencies with taxing authority. Private entities must have a public agency sponsor.
<b>Project Selection Process</b>	<b>Local Program:</b> Separate committees for each ODOT region, made up of local government and public agency representatives, along with ODOT staff and a citizen advocate or interest group member. <b>Statewide Program:</b> One inter-agency committee that includes ODOT and private/nonprofit representation. Committees select projects using an agreed upon point system, and recommend the top ranking projects for available funding.
<b>Web Site</b>	<a href="http://www.odot.state.or.us/techserv/engineer/pdu/Enhance.htm">http://www.odot.state.or.us/techserv/engineer/pdu/Enhance.htm</a>

## **Congestion Mitigation and Air Quality Improvement (CMAQ) Program**

These federal funds are designated for areas identified as non-attainment or maintenance areas under the Clean Air Act Amendments of 1990. There are seven areas that qualify for CMAQ funding – Portland/METRO, Klamath Falls (UGB), La Grande (UGB), Lakeview (UGB), Oakridge (UGB), Medford/Ashland (AQMA – Air Quality Maintenance Area) and Grants Pass (UGB). The purpose is to fund transportation projects and programs that contribute to improving air quality.

The Federal Highway Administration, in coordination with the Environmental Protection Agency, established general project guidelines for CMAQ projects. In Oregon, a CMAQ Committee with membership representing state, local and federal governments assisted in developing specific project selection criteria and distribution targets. The funding level over the next several years is anticipated to be approximately \$8 million per year.

All projects must demonstrate savings in emissions (carbon monoxide, ozone and/or particulate matter). Eligible projects and programs include:

- transportation activities in an approved State Implementation Plan
- transportation control measures identified in an approved air quality State Implementation Plan
- pedestrian/bicycle off road or on road facilities, including modification of existing public walkways to comply with the Americans with Disabilities Act
- TEA-21 management and monitoring systems
- traffic management/monitoring/congestion relief strategies
- transit (new system/service expansion or operations)
- alternative fuel projects (including clean fuel fleet programs and conversions)
- public/private partnerships and initiatives

- inspection and maintenance programs
- intermodal freight
- travel demand management
- project development activities for new services and programs with air quality benefits
- public education and outreach activities
- rideshare programs
- establishing/contracting with transportation management associations (TMAs)
- fare/fee subsidy programs
- experimental pilot projects/innovative financing, and
- other transportation projects

<b><i>ODOT Contact</i></b>	Vince Carrow, 503-986-3485, Environmental Engineering Unit, Technical Services Branch; or the ODOT Region Federal-Aid Specialist.
<b><i>Annual Amount</i></b>	Anticipated to be approximately \$8 million per year.
<b><i>Match Requirements</i></b>	89.73% maximum federal share. Minimum 10.27% non-federal funds.
<b><i>Program Rules</i></b>	Code of Federal Regulations (CFR) Title 23.
<b><i>Eligible Uses</i></b>	See list above.
<b><i>Eligible Recipients</i></b>	Sponsors of projects in designated non-attainment and maintenance areas as defined by the Clean Air Act.
<b><i>Project Selection Process</i></b>	Local decision; normal STIP process.
<b><i>Planning and Implementation Assistance</i></b>	ODOT Region Federal-Aid Specialist and ODOT Environmental Engineering Unit.
<b><i>Web Site</i></b>	<a href="http://www.odot.state.or.us/eshtm/air.htm">http://www.odot.state.or.us/eshtm/air.htm</a>

## **Highway Bridge Rehabilitation or Replacement (HBRR)**

The purpose of HBRR funding is to replace or rehabilitate roadway bridges over waterways, other topographical barriers, other roadways, railroads, canals, ferry landings, etc., when those bridges have been determined deficient because of structural deficiencies, physical deterioration, or functional obsolescence.

These funds are used for replacement or rehabilitation of local bridges, both “on” and “off” the federal-aid highway system. ODOT develops a list of eligible bridges every one or two years from the Bridge Management System. The bridge owners submit a list of bridges they would like considered. The Local Bridge Review Selection Committee reviews and prioritizes the bridges based on a technical ranking system. HBRR funds can be used for:

- The total replacement of a structurally deficient or functionally obsolete highway bridge on any public road with a new facility constructed in the same general traffic corridor,

- The rehabilitation that is required to restore the structural integrity of a bridge on any public road, as well as the rehabilitation work necessary to correct major safety (functional) defects,
- Bridge painting, seismic retrofitting.

By agreement, ODOT provides half the required 20% non-federal match, leaving the local government responsible for only 10% of the project costs.

<b><i>ODOT Contact</i></b>	Ivan Silbernagel, 503-986-3399, Interim Bridge Operations Managing Engineer, Bridge Section, Technical Services Branch
<b><i>Annual Amount</i></b>	\$19,000,000 for Local Agency bridges.
<b><i>Match Requirements</i></b>	In Oregon, 80% HBRR funds are matched with 10% local (non-federal funds) and 10% state funds.
<b><i>Program Rules</i></b>	23 U.S.C. 144
<b><i>Eligible Uses</i></b>	Qualifying bridge repair and replacement.
<b><i>Eligible Recipients</i></b>	Not less than 15% is to be spent on bridges off of the Federal-aid highway system (i.e., bridges on local roads and rural minor collectors). Up to 85%, but not less than 65% is to be spent for bridges on the Federal-aid highway system.
<b><i>Project Selection Process</i></b>	Projects programmed for funding are listed in the Statewide Transportation Improvement Program (STIP).
<b><i>Web Site</i></b>	<a href="http://www.odot.state.or.us/tsbbridgepub/">http://www.odot.state.or.us/tsbbridgepub/</a>

## **Immediate Opportunity Fund (IOF)**

Immediate Opportunity Funds are available to support economic development in Oregon through the construction and improvement of public streets and roads in support of plant locations and other immediate opportunities. The maximum available to the Immediate Opportunity Fund is \$7 million a year. The fund is separated into two categories:

- Type A projects support specific economic development activities that affirm job retention and create job opportunities. A qualifying project can receive up to \$500,000.
- Type B projects focus on the revitalization of business or industrial centers to support economic development and quality development objectives. A qualifying project can receive up to \$250,000.

Both types of projects require a 50 percent match from public or private sources. Funding requests are made through the Oregon Economic and Community Development Department's (OECDD) Region Development Officer and coordinated with ODOT Region offices. Formal recommendations for approval are made by the OECDD and ODOT directors to the Oregon Transportation Commission based on economic merit, transportation need and quality development objectives. Annual funding is set at \$7 million; unused balances are returned annually to the Statewide Transportation Improvement Program.

<b><i>Program Contact</i></b>	503-986-0110, OECDD Office of the Director can provide referrals to the region contact for your area.
<b><i>Annual Amount</i></b>	Up to \$7,000,000; project limits of either \$500,000 or \$250,000.
<b><i>Match Requirements</i></b>	50/50; 50% IOF funds matched with 50% local funds
<b><i>Program Rules</i></b>	Policy guidelines are available on request.
<b><i>Eligible Uses</i></b>	Policy guidelines are available on request.
<b><i>Eligible Recipients</i></b>	Cities and counties.
<b><i>Project Selection Process</i></b>	Oregon Economic and Community Development Department receives initial applications, final decisions are by the Oregon Transportation Commission.
<b><i>Web site</i></b>	<a href="http://www.econ.state.or.us">http://www.econ.state.or.us</a>

## **Oregon Transportation Infrastructure Bank (OTIB)**

The Oregon Transportation Infrastructure Bank provides loans and other forms of financial assistance to local jurisdictions for Federal-aid eligible highway and for Title 49 eligible transit capital projects. Projects must meet appropriate planning, programming, design and contracting requirements. Applications are evaluated and ranked on ten criteria by OTIB staff and a Regional Advisory Committee. The Chief Financial Officer makes formal recommendations for approval to the Oregon Transportation Commission. The bank was initially capitalized with \$10 million of federal and state highway funds. An additional \$5.51 million of federal funds has also been awarded to the OTIB.

<b><i>ODOT Contact</i></b>	Gary Whitney, 503-986-3921, Oregon Transportation Infrastructure Bank, Financial Services Branch.
<b><i>Annual Amount</i></b>	Determined by local agency need.
<b><i>Match Requirements</i></b>	OTIB loans can finance up to 100% of eligible project costs.
<b><i>Program Rules</i></b>	Code of Federal Regulations (CFR) Title 23 and state requirements govern highway Federal-aid projects. Code of Federal Regulations (CFR) Title 49 and state requirements apply to transit capital projects.
<b><i>Eligible Uses</i></b>	Federal-aid highway (Title 23) and transit capital (Title 49) projects.
<b><i>Eligible Recipients</i></b>	Cities, counties, special districts (including transit, transportation, and port districts) state agencies and tribal governments.
<b><i>Project Selection Process</i></b>	Projects are ranked on established criteria; final decisions are made by the Oregon Transportation Commission.
<b><i>Web site</i></b>	<a href="http://www.odot.state.or.us/fsbpublic/otib.htm">http://www.odot.state.or.us/fsbpublic/otib.htm</a>

## **Special City Allotment (SCA) Program**

Funding for road improvements is available to incorporated cities with populations of 5,000 or less. This funding comes from state highway fund revenues and provides reimbursement funds up to \$25,000 to selected projects. ODOT annually asks cities to apply for funding for projects they

select on their local street system. Cities can apply only if previous SCA projects are complete and paid for. ODOT Regions evaluate and rank project proposals from each city. Total funding of \$1,000,000 per year is available.

<b><i>ODOT Contact</i></b>	Region Federal-Aid Specialist.
<b><i>Annual Amount</i></b>	Up to \$1,000,000 annually; project limit of \$25,000.
<b><i>Match Requirements</i></b>	No match required.
<b><i>Program Rules</i></b>	ORS 366.805
<b><i>Eligible Uses</i></b>	Maintenance, repair and/or improvement of existing roads.
<b><i>Eligible Recipients</i></b>	Incorporated cities with population of 5,000 or less.
<b><i>Project Selection Process</i></b>	Region Federal-Aid Specialists rate projects in their region. Ranking is based on established criteria.

## **Special County Allotment Program**

Special County Allotment funds are allocated to the county with the lowest federal and state resource per equivalent road mile in an amount to raise the resource per equivalent road mile to the level of the next lowest county. The funds are then allocated to the two lowest counties until they reach the equivalent road mile rate of the next lowest county. This process is repeated until all available funding is allocated. Total funding of \$750,000 per year is available.

<b><i>ODOT Contact</i></b>	Region Federal-Aid Specialists.
<b><i>Annual Amount</i></b>	Up to \$750,000 total per year statewide.
<b><i>Match Requirements</i></b>	No match required.
<b><i>Program Rules</i></b>	ORS 366.541
<b><i>Eligible Uses</i></b>	Maintenance, repair and/or improvement of existing roads.
<b><i>Eligible Recipient</i></b>	Select counties, as defined by statute.
<b><i>Project Selection Process</i></b>	See above description.

## **State Bicycle and Pedestrian Grants**

Cities and counties can apply for grants for bicycle and/or pedestrian projects. Grants are limited to \$100,000 and projects are to be administered by the applicant. Projects can be located on local streets or state highways, but they must be located in the right-of-way of a highway, street, or road. In other words, no bicycle or pedestrian paths in parks can be constructed through this program. State highway projects should not require additional right-of-way and should be low-impact. Improvements proposed in conjunction with preservation overlays are looked at very favorably. The addition of bike lanes and sidewalks as part of road construction and reconstruction are not eligible. Some conditions are common to both the local program and the state program, others apply to only one:

<b><i>ODOT Contact</i></b>	503-986-3555, Bicycle & Pedestrian Program, Technical Services Branch.
<b><i>Annual Amount</i></b>	\$1,800,000 annually

<b>Match Requirements</b>	20% match on local projects. No match required on state highway projects, but contributions are welcome.
<b>Program Rules</b>	Projects must meet current ODOT design standards.
<b>Eligible Uses</b>	For bicycle projects: shoulder widening or bike lane striping. For pedestrian projects: sidewalk infill, ADA upgrades, pedestrian crossings or intersection improvements.
<b>Eligible Recipients</b>	<u>Local projects</u> : Cities & counties. <u>State highway projects</u> : Cities, counties and ODOT.
<b>Project Selection Process</b>	<u>Local projects</u> : Every two years by the Oregon Bicycle and Pedestrian Advisory Committee. <u>State Highway Projects</u> : Every two years by ODOT.
<b>Web Site</b>	<a href="http://www.odot.state.or.us/techserv/bikewalk/index.htm">http://www.odot.state.or.us/techserv/bikewalk/index.htm</a>

## Special Transportation Fund (STF)

The Special Transportation Fund makes funds available to maintain, develop and improve transportation services for people with disabilities and people age 60 and over. Funds are distributed to mass transit districts, transportation districts and, where the districts do not exist, to counties. Three fourths of the funds are distributed on a per capita formula, and one fourth of the funds are awarded by competitive grant. The grants are awarded every two years, in conjunction with the STIP update process, and grant funds are distributed annually.

Total distribution is approximately \$10,000,000 annually during the July 1, 1999 to June 30, 2001 biennium. Of the \$10,000,000 about half is from a two-cents per pack state tax on cigarettes and half is from state general funds.

<b>ODOT Contact</b>	503-986-3300, Public Transit Division.
<b>Annual Amount</b>	Approximately \$10,000,000 annually during the July 1, 1999 to June 30, 2001 biennium.
<b>Match Requirements</b>	No match requirements on funds disbursed by formula; 80/20 match (80% STF funds matched with 20% local funds) required for planning and capital projects; 50% match for operations projects funded by competitive grant.
<b>Program Statutes</b>	ORS 391.800 to 391.830
<b>Eligible Uses</b>	Transportation services for the elderly and persons with disabilities.
<b>Eligible Recipients</b>	Governing Bodies as defined by the statute.
<b>Project Selection Process</b>	None for funds distributed by formula; every two years in conjunction with the STIP update for funds distributed by competitive grant.
<b>Web Site</b>	<a href="http://www.odot.state.or.us/tdb/pubtrans/index.htm">http://www.odot.state.or.us/tdb/pubtrans/index.htm</a>

## Public Transit Set-Aside of STP Funds

During the July 1, 1999 to June 30, 2001 biennium the state legislature has directed that \$10,000,000 of STP funds be made available to transit providers for vehicle replacements and to add capacity for transportation services for the elderly and for persons with disabilities.

## Small Cities and Rural Areas Program (Section 5311)

The Public Transit Division of ODOT operates the Small Cities and Rural Areas Program, which is funded by the Federal Transit Administration (FTA). The program provides funds (by formula) to eligible recipients for general public transit service. **Local public bodies providing service to areas of less than 50,000 population are eligible recipients.** Funds are awarded annually and disbursed quarterly. More than \$2,000,000 per year is available.

<i><b>ODOT Contact</b></i>	Kathy Straton, 503-986-3408, Public Transit Division
<i><b>Annual Amount</b></i>	More than \$2,000,000 annually.
<i><b>Match Requirements</b></i>	80/20; 80% federal funds matched with 20% local (non-federal) funds for "capital" projects; 50% match required for "operations" expenditures.
<i><b>Program Rules</b></i>	Code of Federal Regulations (CFR) Title 49
<i><b>Eligible Uses</b></i>	Transportation services for the general public.
<i><b>Eligible Recipients</b></i>	Transit providers serving rural areas of less than 50,000 population.
<i><b>Project Selection Process</b></i>	Potential grantees apply for eligibility and funds are distributed to eligible grantees by formula.
<i><b>Web Site</b></i>	<a href="http://www.odot.state.or.us/tdb/pubtrans/index.htm">http://www.odot.state.or.us/tdb/pubtrans/index.htm</a>

## Capital Assistance Program (Section 5310)

The Public Transit Division of ODOT operates the Capital Assistance Program, which is funded by the Federal Transit Administration (FTA). The program provides funds (by competitive grant) to eligible recipients for transit capital needs for providers of service to the elderly and persons with disabilities. Local public bodies and non-profits are eligible recipients. Grants are awarded every two years, in conjunction with the STIP update process, and funds are disbursed annually. Approximately \$1,000,000 per year is available. The Public Transit Division's competitive grant program (funded with Special Transportation Funds, region STP, and Section 5310 funds) is operated under the umbrella name "Community Transportation Program (CTP)."

<i><b>ODOT Contact</b></i>	Steve Dickey, 503-986-3416, Public Transit Division.
<i><b>Annual Amount</b></i>	Approximately \$1,000,000 annually.
<i><b>Match Requirements</b></i>	80/20; 80% federal funds matched with 20% local (non-federal) funds.
<i><b>Program Rules</b></i>	Code of Federal Regulations (CFR) Title 49

<b><i>Eligible Uses</i></b>	Capital expenditures for transportation services for the elderly and persons with disabilities.
<b><i>Eligible Recipients</i></b>	Local public and non-profit agencies.
<b><i>Project Selection Process</i></b>	Every two years in conjunction with the STIP update process.
<b><i>Web Site</i></b>	<a href="http://www.odot.state.or.us/tdb/pubtrans/index.htm">http://www.odot.state.or.us/tdb/pubtrans/index.htm</a>

## **Transportation Safety Programs**

The Transportation Safety Division of ODOT awards grants for transportation safety programs. The selection of recipients is based on a statewide analysis of safety data followed by a detailed review of the local data. More than \$6 million per year is awarded for programs in impaired driving, occupant protection, youth, pedestrian, speed, enforcement, bicycle and motorcycle safety.

<b><i>ODOT Contact</i></b>	Sandi Bertolani, 503-986-4193, Grants/Contract Coordinator, Transportation Safety Division.
<b><i>Annual Amount</i></b>	\$6 million.
<b><i>Match Requirements</i></b>	Sliding scale.
<b><i>Program Rules</i></b>	Code of Federal Regulations (CFR) Title 23.
<b><i>Eligible Uses</i></b>	Enforcement, education, minor engineering.
<b><i>Eligible Recipients</i></b>	State, local and non-profit organizations.
<b><i>Project Selection Process</i></b>	Solicited annually by Transportation Safety Division staff, based upon statewide problem identification.
<b><i>Web Site</i></b>	<a href="http://www.odot.state.or.us/lawsafe.htm">http://www.odot.state.or.us/lawsafe.htm</a>

## **Transportation Growth Management Funds**

The Transportation Growth Management Program will provide approximately \$8 million in grants and development assistance to local governments for transportation planning in the 1999 - 2001 biennium. Three separate programs, one grant program and two assistance programs, operate under the umbrella of the Transportation Growth Management Program.

The grants program:

- Transportation and coordinated transportation/land use planning grants totaling approximately \$6 million will be provided to local governments in the 1999 - 2001 biennium. Applications were closed May 17th for the current biennium.

The development assistance programs are:

- The Quick Response Program provides planning and design services to help developers and communities create compact, pedestrian-friendly, and livable neighborhoods and activity centers. In response to local requests, property owners, local and state officials, and affected stakeholders come together to review development proposals, develop innovative design solutions, and overcome regulatory obstacles to land use, transportation, and design

issues. For further information contact Eric Jacobson by email [Eric.Jacobson@state.or.us](mailto:Eric.Jacobson@state.or.us), by phone 503-373-0050 ext. 265, or by fax 503-378-2687.

- The Smart Development Code Assistance Program provides technical assistance to local communities to revise land development codes to remove obstacles to development that supports efficient use of the transportation system. For further information contact Gloria Gardiner by email [Gloria.Gardiner@state.or.us](mailto:Gloria.Gardiner@state.or.us), by phone 503-373-0050 ext. 282; or by fax: 503-378-2687.

<b><i>ODOT Contact</i></b>	For general information contact Alan J. Fox, 503-986-4126, TGM Program Coordinator.
<b><i>Biennial Amount</i></b>	Approximately \$6 million in 1999-2001 biennium grants.
<b><i>Match Requirements</i></b>	89.73% federal funds matched with 10.27% non-federal funds.
<b><i>Program Rules</i></b>	Federal requirements and State Transportation Planning Rule.
<b><i>Eligible Uses</i></b>	Transportation and coordinated transportation/land use planning.
<b><i>Eligible Recipients</i></b>	Cities, counties and metropolitan planning organizations are the principal recipients. Other eligible recipients include councils of government when acting on behalf of governments, and special districts for cooperative and urban service agreements.
<b><i>Project Selection Process</i></b>	Transportation planning grants are awarded on a biennial basis in odd numbered years. The Quick Response Program and the Smart Development Code Assistance Program are open continually to accepting new applications.
<b><i>Web Site</i></b>	<a href="http://www.lcd.state.or.us/issues/tgmweb/index-f.htm">http://www.lcd.state.or.us/issues/tgmweb/index-f.htm</a>



## Oregon Department of Transportation

PROGRAMS	PROGRAM MANAGER (contact person)	PURPOSE/FOCUS (include amount of appropriation)	APPLICATION CYCLE	WHO CAN APPLY?
Special City Allotments	Don Aman 503-986-3880	Grants of up to \$25,000 for local street system improvement projects. Total funding of \$1 million per year.	Yearly	Incorporated cities with populations of less than 5,000.
State Pedestrian & Bicycle Grants	Michael Ronkin 503-986-3555	Grants for pedestrian or bicycle improvements on state highways or local streets. Grant amount up to \$200,000, local match encouraged. Requires applicant to administer project. Projects must be situated in road, street or highway right-of-way. Project types include sidewalk infill, ADA upgrades, street crossings, intersection improvements, minor widening for bike lanes.	Every two years — Coincides with STIP update cycle	Cities and counties
Immediate Opportunity Fund	Jack Svadlenak 503-986-3467	This fund provides needed street and road improvements to (A) influence location or retention of firms providing primary employment or (B) revitalize business or industrial centers where the investment is not speculative. State funding up to \$500,000 for type A or \$250,000 for type B is available and requires a 50 percent match from public or private sources. (Annual funding is set at \$3 million for FY 2001 and \$1 million thereafter.)	As needed.  Can apply as often as they need warrants. Limited to yearly funding.	Cities and Counties apply through the Oregon Economic Development Department
Highway Bridge	Mark Hirota 503-986-	Local bridge rehabilitation or replacement	Every two years. Coincides with	Any city or county with a structurally

<p><b>Rehabilitation or Replacement</b></p>	<p>4200</p>		<p>STIP update cycle.</p>	<p>deficient or functionally obsolete bridge meeting criteria established by federal regulations or FHWA policies.</p>
<p><b>Oregon Transportation Infrastructure Bank</b></p>	<p>Paul Cormier 503-986-3921</p>	<p>Provides loans and other forms of financial assistance to local jurisdictions for federal-aid eligible highway and transit capital projects. Loans can cover all or a portion of an eligible project, and can be used to advance a project's schedule.</p>	<p>Applications are accepted at any time.</p>	<p>Cities, counties, special districts, transit districts, tribal governments, ports, state agencies, and private for-profit and non-profit organizations.</p>
<p><b>Corridor Planning (Transportation System Planning)</b></p>	<p><b>ODOT Region Planners</b></p> <p><b>Region 1</b> Leo Huff 503-731-8228</p> <p><b>Region 2</b> John deTar 503-986-2653</p> <p><b>Region 3</b> Terry Harbour 541-957-3501</p> <p><b>Region 4</b> Mark DeVoney 541-388-6342</p> <p><b>Region 5</b> Bill Barnett 541-963-1347</p>	<p>Funding is accessed through Corridor Planning at the Region level. Funds are available for documenting the needs on local transportation systems and tying these needs to the state's corridor planning process. ODOT regions fund program with Gas Tax revenues and State Planning and Research dollars.</p>	<p>No application process.</p> <p>Cities, Counties and MPOs over 2,500 pop. are required to have transportation plans. Cities with population less than 10,000 may be exempt from transportation planning. ODOT chooses to participate in the development of these plans by Intergovernmental Agreement or by providing consultant services or by coordination or other assistance.</p>	<p>Cities, counties and MPOs</p>
<p><b>Federal Surface Transportation</b></p>	<p><b>ODOT Region</b></p>	<ul style="list-style-type: none"> <li>• Construct, re-construct. re-</li> </ul>	<p>Federal Legislation:</p>	<p>Local governments, or others working</p>

<p><b>Program</b></p>	<p><b>Managers:</b></p> <p><b>Region 1</b> (Portland and surrounding area): Kay Van Sickle 503-731-8256</p> <p><b>Region 2</b> (NW Oregon) Gary Johnson 503-986-2631</p> <p><b>Region 3</b> (SW Oregon) Paul Mather 541-957-3507</p> <p><b>Region 4</b> (Central Oregon) Bob Bryant 541-388-6184</p> <p><b>Region 5</b> (Eastern Oregon) Tom Schuft 541-963-3179</p>	<p>surface and restore roads.</p> <ul style="list-style-type: none"> <li>• Operational improvements on federal aid highways.</li> <li>• Carpool projects.</li> <li>• Capitol cost for transit.</li> <li>• Safety improvements.</li> <li>• Planning and research.</li> <li>• Management Systems.</li> <li>• Wetland mitigation related to Title 23 projects.</li> <li>• Transportation Enhancement activities.</li> </ul>	<p>Transportation Equity Act of the 21<sup>st</sup> Century (TEA-21). Yearly apportionments received from FHWA. The amount to local jurisdictions is by agreement with AOC and LOC.</p>	<p>through a local government as their sponsor. Matching (non-federal) funds are required in varying proportions from 10% to 50% depending on program selected.</p>
<p><b>Transportation Enhancement Program</b></p>	<p>Pat Rogers 503-986-3528</p>	<p>Projects that enhance the cultural, aesthetic and environmental value of the state's transportation system. Twelve eligible activities, including</p> <p>bicycle/ pedestrian projects, historic preservation, landscaping and scenic</p> <p>beautification, mitigation of pollution due to highway runoff, and preservation of abandoned railway corridors. 10.27% minimum match required. (\$3 million annual funding</p>	<p>Every two years in conjunction with STIP update process.</p>	<p>Local governments, other public agencies (state, federal, tribal) &amp; five ODOT regions</p>

		for FY 2002 through 2005)		
<b>Congestion Mitigation and Air Quality Improvement Program</b>	Vince Carrow 503-986-3485	Supports transportation projects and programs that reduce traffic congestion and improve air quality. (The funding level over the 2000 — 2003 State Transportation Improvement Program funding is anticipated to be \$9-9.5 million per year. A 10.27% match is required)	Every two years in conjunction with STIP update process.	Any local government in Portland Metro area; Klamath Falls; La Grande; Lakeview; Oakridge; Medford/ Ashland Metro area; and Grants Pass
<b>Special Transportation Fund</b>	Jean Palmateer 541-296-2602	The annual distribution of about \$4.5 million is made available to maintain, develop and improve transportation services for people with disabilities and people aged 60 and over.	Annually in June.	Governing Bodies as defined by statute — primarily counties, transit or transportation districts.
<b>Community Transportation Program</b>	Dinah Van Der Hyde 503-986-3415	Grant funds for special needs and public transportation services throughout the state. Approximately \$3 — 4 million per year.	Every two years coordinated with STIP cycle.	Cities, counties, Tribal Governments, private non-profits, transit and transportation districts.
<b>Transportation Safety</b>	Sandi Bertolani 503-986-4193	Program promotes transportation safety such as programs in impaired driving, occupant protection, youth, pedestrian, speed, enforcement, bicycle & motorcycle safety.  (Over \$1.25 million is awarded annually)	Not an application process.  Projects chosen by problem identification.	State and local agencies, Indian Tribes/ Nations, and Non-Profit groups.
<b>Hazard Elimination Program (HEP)</b>	Chris Monsere (After 09/25/00) 503-986-3580 Paul Davis (Interim) 503-986-3609	Program's mission is to carry out safety improvement projects to reduce the risk, number, and/or severity of accidents at highway locations, sections, and elements on any public road or public transportation facility.	Applications accepted at any time. Once the agency identifies a safety problem they should contact the appropriate Region staff and forward accident records, justification	State and local agencies

			documents, and other pertinent project information. Region staff will then prepare a draft prospectus and send it to the Traffic Management Section to determine program eligibility.	
<b>Transportation and Growth Management Program</b>	<p>Alan Fox, Program Coordinator (ODOT) 503-986-4126</p> <p>Anna Russo, Program Manager (DLCD) 503-373-0050 (Ext. 260)</p> <p>Barbara Fraser, Program Manager (ODOT) 503-986-4127</p>	<p>Program's mission is to enhance Oregon's livability, foster integrated transportation and land use planning and development that result in compact, pedestrian, bicycle, and transit friendly communities. The program offers:</p> <ol style="list-style-type: none"> <li>1. Grants to Local Governments for Transportation System Planning (\$5 million budgeted for 2001-2003)</li> <li>1. Development Assistance (\$1.2 million budgeted for 2001-2003)             <ul style="list-style-type: none"> <li>o Quick Response</li> <li>o Community Outreach</li> <li>o Code Assistance</li> </ul> </li> </ol>	Every two years (in odd numbered years).	Cities, counties, metropolitan planning orgs., COG's, and special districts
<b>Public Lands Highways (PLH) Discretionary Program</b>	Pat Rogers 503-986-3528	For projects that improve access to or within federal lands of the nation. Can fund engineering or construction of highways and roads, transportation planning and research, and other facilities related to public travel on roads to or through federal lands. Provides reimbursement,	Funding Cycle: Yearly. Opens in Dec./Jan. Applications due in May. Selections in Nov./Dec. Oregon will select candidate projects to enter in the nationwide competition for	Public agencies (local, state, federal, regional, tribal).

		not grants.  Nationwide competition with no guaranteed minimum for Oregon.	funds.	
<b>Local Street Networks Fund</b>	John Fink 503-986-3922	Program purpose is to provide local transportation system improvements where the improvements benefit the state highway. This program is part of the "Oregon Livability Initiative." A total of \$30,000,000 is available for projects statewide with funding allocated by ODOT Region on an equity basis.	A one-time round of applications was closed on May 19, 2000. Additional applications may be solicited only if a suitable number of projects are not identified through this round of applications.	Cities, counties, ports, tribal governments, other public agencies (projects must be on public right of way).
<b>Access Management Fund</b>	John Fink 503-986-3922	Program purpose is to provide supplemental funding to help maintain and improve the state highway system through access management techniques. This program is part of the "Oregon Livability Initiative." A total of \$20,000,000 is available for projects statewide with \$3,000,000 allocated for priority purchases of reservations of access.	A one-time allocation of funds with funds to be expended by June 30, 2001.	A preliminary list of projects is to be developed by each ODOT Region, then advanced to the Area Commission on Transportation (where one exists) and the regional Community Solutions Team for review and comments.

*Last update 9/7/00*