

Final Design Acceptance Package Narrative

for

Cold Springs Cutoff Road to Cascade Meadow Ranch Road

**(formerly Suttle Lake to Sisters)
Santiam Highway (OR 126/US 20)
Deschutes County
ODOT Key # 11173
ODOT ATA # 22546, WOC # 5**

October 14, 2005



Prepared for:

Oregon Department of Transportation

Region 4

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Acronyms and Abbreviations

| | |
|------|-------------------------------------|
| ADT | Average daily traffic |
| DAP | Design Acceptance Package |
| ESA | Endangered Species Act |
| LOS | Level of Service |
| MP | Mile post |
| mph | Miles per hour |
| ODOT | Oregon Department of Transportation |
| USFS | United States Forest Service |
| V/C | Volume-to-capacity |
| VPD | Vehicles per day |
| VPH | Vehicles per hour |

Introduction

The Cold Springs Cutoff Road to Cascade Meadow Ranch Road project (formerly known as the Suttle Lake to Sisters project) is located on the Santiam Highway (OR 126/US 20) west of Sisters, Oregon. The Oregon Department of Transportation (ODOT) proposes to provide improved passing opportunities on the existing highway by adding passing lanes with a westbound left turn refuge on the west end of the passing lane section.

Passing Lane (MP 96.31 to MP 97.47)

It is proposed that the highway be widened equally on both sides to provide two additional 12-foot-wide passing lanes (one in each direction of travel).

Westbound Left Turn Refuge (MP 95.86 to MP 96.31, including new no-passing striping west of the construction)

Construct a westbound center left turn refuge lane for Cold Springs Cutoff Road. The length and widths for the lane design will be in accordance with ODOT Standard Drawing TM539. The minimum storage length shown in the Standard Drawing will be provided as traffic counts taken by ODOT in July 2005 did not reveal a high left turn volume at this intersection. The left turn refuge will be offset to the south side of centerline to give a more visually effective end to the passing lane prior to the left turn refuge. This layout will give the visual cue of the passing lane ending prior to the turn refuge, even if the pavement markings are obscured.

Purpose

The purpose of the proposed project is to improve safety and mobility on the Santiam Highway, United States Highway 20/Oregon State Highway 126 (U.S. 20/OR 126) between Suttle Lake and Sisters.

Goals and Objectives

ODOT's goals and objectives for this project include improved traffic safety and mobility; minimization of impacts to natural, cultural, and community resources, and regulatory compliance. Because U.S. 20/OR 126 from mile post (MP) 96 to 98 traverses the Deschutes National Forest, ODOT is coordinating with the United States Forest Service (USFS) to minimize impacts to USFS resources and ensure compliance with applicable USFS plans.

The project goals and objectives are as follows:

- Improve traffic safety and mobility
- Minimize tree removal
- Minimize utility conflicts
- Minimize traffic disruptions during construction

Need

This project is needed to address safety and mobility issues resulting from high traffic volumes and insufficient passing opportunities on the Santiam Highway.

The Santiam Highway (U.S. 20/OR 126) is a major east-west freight route and state and national scenic byway through the Cascade Mountains, linking the Willamette Valley and Central Oregon. Between Suttle Lake and Sisters (MP 96 to 98), ODOT classifies the highway as a Rural Expressway. Average Daily Traffic (ADT) along this stretch of the highway is approximately 7,900 vehicles per day, and is predicted to increase to approximately 11,000 vehicles per day within 20 years. In summer months when tourism activity is high, traffic volumes exceed the design capacity of the highway, affecting mobility through the area.

Few passing opportunities are available between Suttle Lake and Sisters. In those places where the highway is striped to allow passing, opposing traffic volumes often preclude safe passing opportunities. Large volumes of traffic and increasing numbers of slow-moving trucks and recreation vehicles exacerbate the safety and mobility issues because some frustrated drivers attempt to pass when it is not safe to do so or whenever they find an acceptable gap, disregarding the legality of the maneuver. In the last five years there have been 33 accidents on U.S. 20/OR 126 between MP 96 and 98. ODOT has identified U.S. 20/OR 126 from MP 87 to 100 as a priority for safety improvements.

Funding

The programmed construction cost is \$2.51 million (including construction engineering and contingencies).

Existing Conditions

This segment of the Santiam Highway (OR 126/US 20) is a rural 2-lane highway, with existing (year 2001) average daily traffic of about 7,700 vehicles per day (vpd) (projected to increase to about 11,000 vpd by the year 2021). The posted speed limit is 55 miles per hour (mph). The terrain is flat to rolling, and the existing horizontal alignment in both passing lane sections is a tangent. Grades are relatively gentle, under one percent. Travel lanes are 12 feet wide, with paved shoulders 5-6 feet wide. Passing is allowed through most of the project area, except near various road intersections. The existing drainage facilities in the two passing lane sections are limited to a couple of small diameter cross drain pipes.

Proposed Solution

The proposed solution includes a westbound left turn refuge at the west end of the proposed one-mile-long, 4-lane passing lane section. The westbound left turn refuge will mitigate potential conflicts between vehicles slowing in the left through lane to make a turn onto Cold Springs Cutoff Road, and vehicles accelerating to overtake slow moving vehicles before the end of the passing lane.

The proposed solution is one of a number of potential options that were considered during the preliminary design phase of this project. Other solutions that were considered included:

1. Construction of two separate passing lane sections (as originally proposed in the "Suttle Lake to Sisters" project prospectus). Because of the high financial cost and the higher level of environmental disturbance this solution was rejected.

2. Constructing the more easterly passing lanes that would be closer to the City of Sisters was determined to be a better value than constructing the additional westbound passing lane west of Black Butte Ranch, because because it will give vehicles a passing opportunity just as they are leaving (or just before entering) Sisters, rather than having to drive a few miles from town before having a passing opportunity. A passing lane in this location should help to reduce the traffic queues into and out of Sisters, especially during special events such as the Quilt festival.
3. Construction of the longest 4-lane passing lane section possible between Cold Springs Cutoff Road and Cascade Meadow Ranch Road. This would be approximately 7600 feet of full four lane section, excluding tapers, which would end at least 200 feet from the road intersections at each end. This option might mislead drivers into believing they are in a 4-lane section instead of a passing lane section. This project by itself was estimated to cost about \$2.6 million.
4. Construction of a single one-mile-long 4-lane passing lane section with an additional one-mile-long section of pavement preservation in an adjacent section. During the preliminary design phase in late June/early July 2005, it was discovered the entire 13 miles of highway between Suttle Lake and Sisters are in need of pavement preservation, not just any one specific section within the 13 miles. The cost of the recommended pavement preservation surfacing treatment (which includes a 2 inch grind and 3 inch asphalt overlay) would have allowed only a short section of the highway (probably less than ½ mile) to be resurfaced, using available remaining funds after construction of the one-mile passing lane section. A chip seal overlay was considered for the 13 miles, but this too would have exhausted available remaining funds without covering the entire 13 mile section.

In July 2005, ODOT performed turning movement traffic counts at the Cold Springs Cutoff Road intersection. The counts showed that only 3-4 vehicles were making the left turn from the highway onto Cold Springs Cutoff Road during peak hours, not enough to meet the minimum 11 vehicle per peak hour left turn refuge volume warrant for this particular situation. However, as the July 2005 traffic count showed that approximately 50 percent of the vehicles making left turns were either recreational vehicles or vehicles pulling trailers, it was felt that these vehicles would affect the operations of the highway more like two vehicles rather than just one (per Joel McCarroll, ODOT Region 4 Traffic Manager, by email on July 18, 2005). Given the relatively close proximity to the west end of the proposed passing lane, where westbound vehicles would tend to be traveling fastest as they attempt to pass other vehicles before the end of the passing lanes, it was decided that adding a westbound left turn refuge at the Cold Springs Cutoff Road intersection was a prudent addition to the passing lane project, and could be done within the programmed funding without shortening the one-mile long passing lane section.

There was a concern about how to end the passing lanes and start the center left turn refuge at the west end of the project. It needed to be done in such a way as to minimize potential for fast-moving vehicles in the passing lane to conflict with vehicles in the left turn refuge. The proposed design developed by HDR ends the westbound passing lane east of the start of the

center left turn refuge, and tapers in the eastbound passing lane just to the east of the center left turn refuge.

Project Schedule

Construction is scheduled for the year 2006 - bid opening is currently scheduled for February 23, 2006.

Design Standards

The following design standards will be utilized for the design of this project:

- Design elements were developed according to the *ODOT 2003 Highway Design Manual*. The project is designed in English units of measurement.
- Pavement design was completed by ODOT in January 2005.
- The traffic design was developed utilizing the *MUTCD 2003, Manual of Uniform Traffic Control Devices*, the *ODOT Traffic Control Plans Manual*, and the *ODOT Traffic Sign Design Manual*.

See the *Revised Design Criteria Technical Memorandum* in [Appendix B](#) for more details on the design standards used for the DAP design.

Project Constraints

The following section summarizes constraints in the project area.

Site Constraints

There are no known geologic, topographic, or hydrologic site constraints on this project.

The geologic conditions consist principally of a series of volcanoclastic sediments overlying basalt bedrock. The sediments include glacial drift, outwash gravels, and stream-deposited materials ranging from gravel to silt with occasional cobbles and boulders. Rock pieces consist of basalt, pumice, and cinders. The top of the bedrock is irregular, locally weathered, and shallow in locations (as observed in several nearby outcrops). In general, the existing soils should result in good subgrade conditions.

The project will follow the existing roadway grade line and relief in the existing topography is minimal within the project limits. Earthwork will consist of removing existing pavement and excavating roadside ditches. Cuts or fills will not be deeper than approximately 3 feet.

There are no natural waterways within the project limits.

Environmental and Regulatory Constraints

This project was originally classified as a Category 3, but has been reclassified as a Category 2 because of the changes in project scope, for the following reasons:

1. The project will be constructed entirely within the existing ODOT Special Use Permit area within the Deschutes National Forest in Deschutes County. No additional land use permits or right-of-way would be acquired.
2. The area of disturbance to vegetated areas is expected to be just below 5 acres, which is the US Forest Service's approximate threshold for requiring an Environmental Assessment.
3. Special status species and critical habitat will not be impacted.

The archaeological and historical reconnaissance surveys of the project area did not identify any prehistoric, historic archaeological, or other historic resources that would be affected by the project.

The project will have no effect on species protected under the Endangered Species Act (ESA). No impacts to other special status plants or animals, or their critical habitat, is anticipated as a result of project construction. The project has the potential to spread invasive weeds through translocation of plants and/or seeds from the project site to other project areas. To avoid the spread of weeds, efforts will be made to eradicate these weed infestations prior to quarry use, as directed by Executive Order 13112. Specifications will be developed that require removal of noxious weeds prior to seed set, cleaning vehicles and equipment to prevent tracking and spread of noxious weed seed, and monitoring and removal of noxious weeds after construction.

Although there are no other environmental or regulatory constraints associated with the project, ODOT will coordinate with USFS during project development regarding tree removal and best management practices for construction, including methods to avoid the spread of noxious weeds.

The Migratory Birds Treaty Act restricts work in areas where nesting birds may be present between March 15 and August 31. If clearing and grubbing cannot be completed prior to March 15, 2006, it would, as a minimum, require investigations by a biologist to determine if nesting birds are present in the work area. This could make it difficult or potentially impossible to proceed with clearing and grubbing or other construction activities until after August.

During and after construction, access to adjoining secondary roads would be closed except for the Cold Springs Cutoff Road and Forest Road 500. Access to US Forest Service land during construction would be provided via Cold Springs Cutoff Road and Forest Road 500.

Permits

At this time, it appears no permits are required for this project.

Utility Constraints and Conflicts

The existing utility facilities located in the project area include one underground copper telephone line and one underground fiber optic communication line along the north side of the highway, both owned by Qwest. Both lines are within ODOT's Special Use Permit area by ODOT utility permits, and so if relocation is necessary, no reimbursement is anticipated. Both of these lines would be under the proposed pavement surface for the passing lanes, so initially it was thought that both would have to be relocated. Qwest has said that they would like to abandon the existing copper telephone line in place.

During a utility coordination meeting on September 13, 2005, Qwest asked if it might be possible to leave the fiber optic line in place, although it would be under the new pavement

surface through the passing lane section. Qwest indicated that this fiber optic line, which was installed in 2002, is buried about 48 inches deep. No excavations this deep are expected as part of the highway construction project. Those present at this utility coordination meeting indicated their support for this proposal, with several provisions:

1. Qwest must obtain concurrence from ODOT's District Permits Specialist that leaving the fiber optic line under the new pavement surface is acceptable. Qwest has obtained preliminary concurrence from the District, pending the outcome of the utility test-hole excavations (see # 2).
2. Qwest must perform utility test-hole ("pothole") excavations at intervals no further than every 500 feet within the limits of the proposed highway project, to verify the depth of the fiber optic line.

If the fiber optic line must be relocated, it was agreed that, to minimize impacts to trees, it can be relocated within the proposed new outside ditch slope, at least 36 inches below the bottom of the new ditch. Qwest would need a 60 day window in which to install a new fiber optic line.

Qwest has indicated a desire to abandon the copper telephone line in place. This line, which Qwest said is technically still "live," is most likely not deep enough to avoid conflicts with the proposed highway widening. Qwest has not indicated a desire to replace the existing copper line. Per a June 30, 2005 email from Robert Morrow of ODOT Region 4, "Qwest may abandon the older copper line in place as long as it does not interfere with any new construction, as for the relocate of the fiber optic line we are in agreement with the plan of installing the new line in the back of slope with a minimum depth of 36" from the bottom of ditch to the top of the new lines."

If Qwest must relocate the fiber optic line, it is likely they will not be able to do so until the trees and stumps/roots are removed from the area to be cleared for the new highway ditch slopes on the north side of the highway. Jeff Sims of the USFS indicated that, while the USFS will not remove tree stumps or roots, they may be able to initiate a timber sale in October 2005, perhaps allowing the trees to be cut before the end of the year. Currently it is anticipated that the fiber optic line can remain in place.

Right-of-Way Constraints

This segment of the Santiam Highway is located within a Special Use Permit on lands of the USFS. The existing Special Use Permit area is approximately 132 feet wide. All proposed project construction will be within the existing USFS Special Use Permit easement. Additional right of way will not be required for this project. ODOT intends to work with the USFS to redesignate the Special Use Permit area to an easement – this is a programmatic action which is separate and independent of this project, and does not have to be completed prior to construction.

Cost Constraints

The current estimated cost of the project, \$2.4 million, is less than the amount programmed for construction (\$2.51 million). The current cost estimate includes 15% for construction engineering and 15% for contingencies. It is anticipated that, as the project design proceeds into advance and final plans, the contingency percentage and total estimated construction cost will decrease as the cost estimate is refined. However, there may be additional costs added as the project design progresses into the Advance Plan stage.

Estimated costs are based on 2003 to 2004 average bid item unit prices for Region 4 as posted on ODOT's website.

See [Appendix C](#) for the detailed Cost Estimate.

Summary of Access Management Strategy

An Access Management Subteam meeting was held on September 13, 2005, during which it was agreed by all parties, including ODOT and the USFS, that all existing access points within the limits of the proposed project would be closed with the construction of this project, except for the following:

- Cold Springs Cutoff Road
- USFS Road 500 (access to a USFS quarry site northeast of the highway)

A new westbound center left turn refuge and eastbound deceleration taper will be constructed at the Cold Springs Cutoff Road as part of this project. This road provides access to large areas southwest of the highway, and also provides access for service vehicles destined for Black Butte Ranch.

USFS Road 500 accesses the highway in the middle of the proposed passing lane section. This road provides access to a USFS quarry site that is used by ODOT and the general public. Signs for Forest Road 500 will be installed along the highway ¼ mile on each side of this road, to alert motorists who are looking for this road that it is coming up, so that they can engage their turn signals and slow up more gradually to allow other vehicles to avoid the vehicles that are slowing up to turn left or right onto Road 500.

It was agreed that there are adequate alternative routes available to access other areas adjacent to the project from other directions. It was also agreed that construction of the new 4:1 ditch slopes will be sufficient to discourage people from using the existing access points to be closed. It is understood by both ODOT and the USFS that it is impractical to attempt to control access to the highway in this section through installation of bollards across accesses to be closed, or through any other measures that might be included in the highway construction project. It is understood that even after construction of the highway project, it will be possible for people to traverse the 4:1 ditch slopes and drive into the forest at almost any point along the highway – it is essentially impossible to do anything to keep this from happening, although ODOT and the USFS agree that to the extent possible without cluttering up the roadside, ODOT and the USFS may pursue opportunities to place relatively unobtrusive but “positive” natural-looking barriers (i.e., rocks, logs, etc) across access points that continue to be used by the public.

Only two existing access points in the project area (USFS Road 500 and the Cascade Meadow Ranch Road) have approved ODOT road approach permits on file. ODOT will process a road approach permit for the Cold Springs Cutoff Road access, which currently does not appear to have a permit on file.

ODOT's access management standards call for a minimum spacing of one mile between public roads on this highway. When the project is completed, the closest access point on the north side of the highway, east of USFS Road 500 ((MP 96.613) will be the Cascade Meadow Ranch Road (MP 97.88), more than one mile east. Following construction, the closest access point on the

north side of the highway west of USFS Road 500 will be Forest Road 2059, which is more than one mile to the west. There will be no access points within one mile east or west of the Cold Springs Cutoff Road intersection on the south side of the highway following construction; therefore, the one mile access spacing standard will be met upon completion of this project.

See [Appendix D](#) for the complete Draft Access Management Strategy and Access List.

Community/Stakeholder Acceptance

Identified stakeholders were notified by mail of a public open house meeting, which was held on June 15, 2005 at the City Hall in Sisters. Local environmental groups, resource agencies, and local governments were among the identified stakeholders who were notified about the public open house meeting. In addition, the public open house meeting was advertised in local newspaper(s).

No members of the public or stakeholders attended the public open house meeting.

No comments about the project have been received from any stakeholders other than the USFS. ODOT and HDR are closely coordinating and cooperating with the USFS on this project.

Design Elements

Traffic Data

The 2003 annualized average daily traffic was 7,927 vehicles per day (vpd) at the Sisters automatic traffic recorder at MP 93.19. The 30th highest design hourly volume (year 2003) represents 17% of the ADT, which is an estimated 1,350 vehicles per hour (vph). The percentage of trucks and buses was 15.9%.

There are large seasonal variations in traffic volumes on this section. Based on the monthly counts from the Sisters automatic traffic recorder, the average daily traffic on a typical summer weekend was 14,637 vehicles per day (vpd) in 2003. On a typical August weekend in 2003, average traffic volumes were approximately 16,168 vpd. In July and August 2003, the average daily weekday traffic was 10,374 vpd. For comparison, the average daily weekday traffic in November through February 2003 was only 4,687 vpd.

Operations

The ideal capacity of this 2-lane highway, as presented in Table 10-2 of ODOT's 2003 Highway Design Manual (HDM), is 21,000. Based on Table 10-4, the adjustment factor for truck traffic would be 0.71. The maximum 20 year design volume-to-capacity (V/C) ratio for this type of roadway is 0.60 as presented in Table 10-1 of the HDM. The maximum ADT for a V/C ratio of 0.60, according to ODOT's Highway Design Manual, is 8,946.

Based on the annualized 2003 ADT, it appears that the maximum V/C ratio for this segment of the Santiam Highway was not technically exceeded in 2003. However, the weekend traffic in the summer months (June through September) of 2003 was almost double the maximum ADT for a V/C ratio of 0.60. Recorded traffic volumes through the rest of the months of 2003 were lower than the ADT limit for a V/C ratio of 0.60.

Proposed Traffic Control

Signalized intersections are not proposed as part of this project. Crossing roads will be stop controlled.

Operational Results

Based on the Highway Capacity Manual (2000 version), the percentage of time spent following another vehicle is calculated at 86% for the existing two lane section during the design hourly volume (assuming a 60%/40% directional split). The average travel speed for the existing two lane section during the 30th highest hour would be about 49 mph assuming a 60 mph free flow speed.

The Highway Capacity Manual (2000 version) predicts that within a passing lane the time spent following another vehicle is 62%. This is based on the directional flow rate during the design hourly volume. Because of the downstream effects of a passing lane, the Level of Service (LOS) within the project limits would go from an 'E' to a 'C'. This is based on analyzing up to a 5 mile segment of the highway. When analyzing up to a 12-mile segment, the passing lane would improve from an LOS 'E' level to LOS 'D.'

Pavement Design Recommendations

Per the January 7, 2005 ODOT Pavement Design Report, the surfacing recommendations for this project are:

New Construction

- 3.0" Level 3, ½" Dense Graded HMAC Wearing Course
- 5.0" Level 3, ½" Dense Graded HMAC Base Course (2 lifts)
- 14.0" Aggregate Base (¾"-0 or 1"-0)
- Subgrade Geotextile
- 18" of Subgrade Stabilization (for approximately 50% of the area of all new construction)

Rehabilitation of Existing Pavement

- 3.0" Level 3, Dense Graded HMAC Wearing Course, Lime Treated (inlay)
- 2.0" Cold Plane Pavement Removal (full width)

Comments on the Draft DAP reflected a desire to reduce or perhaps entirely eliminate the cold plane pavement removal for the rehabilitation of the existing pavement. In addition, Stephanie Serpico has directed HDR to eliminate the subgrade stabilization from the project. Stephanie will contact Roger Miles of the Pavement Design Unit to determine if eliminating the cold plane pavement removal and subgrade stabilization from the project is acceptable.

See [Appendix A](#) for the January 2005 Pavement Design Report.

Proposed Typical Sections

The roadway section in the passing lanes will consist of four 12-foot travel lanes, a 2-foot median, and 6-foot paved shoulders. The roadway section in the left turn refuge will consist of two 14-foot through-lanes, a 16-foot left turn refuge, and 6-foot paved shoulders.

Roadway Preliminary Alignment and Profile

The recovered right-of-way alignment on this segment of highway does not lie in the center of the existing highway pavement. A construction centerline consisting of a 3.0' offset of the recovered right-of-way alignment will be used for this project. To avoid confusion, the proposed construction alignment stationing matches the existing right-of-way alignment stationing.

Drainage, Storm Water, and Water Quality Needs

There are no natural waterways that cross or parallel the highway within the limits of the project. Existing roadway drainage consists of very shallow and poorly-defined ditches; in some areas there are no ditches visible along the highway. Proposed drainage facilities consist of open ditches on each side of the highway, 0.5 feet deep below subgrade.

Signage Requirements

Anticipated signing will be typical passing lane signing. Permanent signs will include “Keep right except to pass,” “Right lane ends,” merge symbols, “Do not pass,” and “Passing lane ½ mile” signs. Most of the signs on the project will be new signs, but an effort will be made to identify existing signs that are still appropriate for the new highway configuration and that are in good enough condition to be reused on new signposts.

Design Exceptions

No design exceptions or design concurrences appear to be required for this project.

Right-of-Way Needs

Additional right-of-way is not required for this project.

Construction Needs

Proposed Conceptual Construction Staging

Stage 1

Consists of widening the south side.

Stage 2

Consists of shifting traffic to the south side and widening the north side and paving to the centerline.

Stage 3

Consists of completing the paving on the south side of centerline.

Construction Cost Estimate

The current estimated total construction cost is approximately \$2.4 million, including 15% for construction engineering and 15% for contingencies. The amount currently programmed for construction is \$2.51 million. It is anticipated that the cost estimate will decrease as design progresses and the percent used for contingencies is reduced. For more details, see the *Preliminary Construction Cost Estimate* in [Appendix C](#).

Design Acceptance Workshop (DAW)

A Design Acceptance Workshop (DAW) was held on October 7, 2005, following review of the Draft DAP. The DAW included discussion of the Draft DAP review comments and responses, as well as discussion of the following Agenda items:

- How much of the existing paved shoulders should be removed? Is it OK if the wheel paths of automobiles would be on or close to the seam between the existing pavement and the new pavement, if most of the existing paved shoulders are not removed?
- What pavement cross slope should be constructed? Considering the very flat vertical grade of the highway and the wider pavement in the passing lane section, a 2% cross slope would provide better drainage, but achieving a 2% cross slope via grinding and leveling is complicated. Is the team in agreement on trying to achieve a 2% cross slope with this project? If so, what is the best method to construct the 2% cross slope, and how should we show this method on the plans?
- Is it possible to use the Zimmerman Quarry (via Forest Road 500) as a disposal site for the excess excavation? (Gary Larson to ask Jeff Sims of the USFS about this) If the USFS is receptive to use of this site, what do we need to do next to make it happen? (i.e. survey a portion of the quarry? clear it environmentally?) If the USFS is not receptive to use of this site as a disposal site, what are the other options?
- Should a separate clearing and grubbing contract be let for this project, to try to clear the tree stumps and roots and brush from the project area prior to the start of the bird nesting season on March 15? With the possibility that the Qwest fiber optic line might not have to be relocated, is there any need (other than not to disturb nesting birds after March 15) to remove tree stumps and roots and brush prior to the start of the construction project?

For details on the *Draft DAP and DAW Review Comments and Responses*, see [Appendix E](#).

Conclusions

The Draft Design Acceptance Package (DAP) represents 30% design level and incorporates USFS and ODOT comments and input. A large design effort remains to be undertaken to create the final bid package. The major remaining efforts that are needed prior to advertising the project for construction bids include:

- Further coordination with Qwest on whether their fiber optic line can remain in place or if any portion of it must be relocated, and if so, determining the schedule for any relocation work.
- Finalizing the Access Management Strategy.
- Developing Advance and Final plans for roadway, traffic control, striping and signing, etc.
- Developing Advance and Final special provisions and construction cost estimate.

Cold Springs Cutoff Road to Cascade Meadow Ranch Road
Santiam Highway (OR 126/US 20)
Deschutes County

Oregon Department of Transportation
ATA No. 22546, WOC No. 5
ODOT Key No. 11173

Appendix A

Final Pavement Design Report

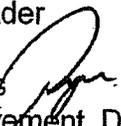


Oregon Department of Transportation
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INTEROFFICE MEMO

DATE: January 7, 2005

TO: Stephanie Serpico
Project Leader

FROM: Roger Miles 
Project Pavement Designer
(503-986-3121)

SUBJECT: Final Pavement Design for:
Suttle Lake - Sisters
Santiam Hwy. No. 16
MP 87.0 – MP 100.0
Jefferson County
PE000975/010
Key No. 11173

It is our understanding that under this project, passing lanes will be constructed between MP 89.0 and MP 90.0 and between MP 95.0 and MP 97.0. The purpose of this memo is to provide the necessary pavement design sections for these locations. This includes rehabilitation of the existing pavement, widening of the mainline for construction of additional lanes, and possible construction of guardrail/mailbox flares.

EXISTING TRAVEL LANE PAVEMENT REHABILITATION

MP 89.0 – MP 90.0

- 2.0" Level 3, ½" Dense HMA Wearing Course, Lime treated
- 2.0" Cold Plane Pavement Removal

The existing shoulders between MP 89.0 and MP 90.0 average 4.1' in width. If left in place, the construction joint between the existing pavement and the widening would be located in a wheel path, which would probably result in a greatly reduced service life. At this location, the existing shoulders should be removed prior to widening.

EXISTING TRAVEL LANE & SHOULDER PAVEMENT

REHABILITATION (MP 95.0 – MP 97.0)

- 3.0" Level 3, ½" Dense HMA Wearing Course, Lime treated
- 2.0" Cold Plane Pavement Removal (full width)

Using the above design section, the existing shoulders between MP 95.0 and MP 97.0 can be incorporated into the new travel lanes. The existing pavement should be cut so that the joint is under a line or in the center of a lane.

The cold plane pavement removal may expose stripped HMAC in some localized areas. This loose material should be removed prior to paving. An additional quantity of new HMAC should be included in the contract to replace the stripped material that has been removed. For estimating quantities, a depth of 2" over 5% of the total area of cold plane pavement removal may be used.

Traffic should not be allowed on any cold planed pavement surface.

The following design section should be used for construction of mainline highway widening.

NEW CONSTRUCTION (MAINLINE WIDENING, MP 89.0 – MP 90.0)

- 2.0" Level 3, ½" Dense HMAC Wearing Course. Lime treated
- 6.0" Level 3, ½" Dense HMAC Base Course, Lime treated (2 equal lifts)
- 14.0" Aggregate Base (¾" – 0 or 1" – 0)
- Subgrade Geotextile

NEW CONSTRUCTION (MAINLINE WIDENING, MP 95.0 – MP 97.0)

- 3.0" Level 3, ½" Dense HMAC Wearing Course. Lime treated
- 5.0" Level 3, ½" Dense HMAC Base Course, Lime treated (1st lift = 3", 2nd lift = 2")
- 14.0" Aggregate Base (¾" – 0 or 1" – 0)
- Subgrade Geotextile

For the construction of mailbox or guardrail flares, the following design section may be used.

NEW CONSTRUCTION (MAILBOX / GUARDRAIL FLARES)

- 2.0" Level 3, ½" Dense HMAC Wearing Course, Lime treated
- 2.0" Level 3, ½" Dense HMAC Base Course, Lime treated
- 6.0" Aggregate Base (¾" – 0 or 1" – 0)

Provision should be made to include an amount of subgrade stabilization in this contract. A depth of 18" over an area of approximately 50% of all new construction can be used for estimating quantities.

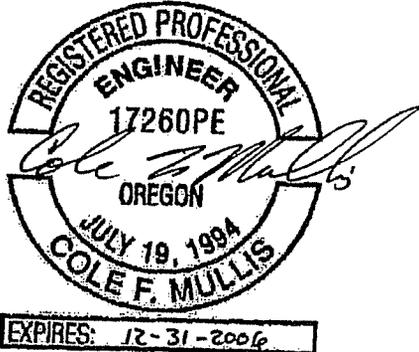
The following specifications are recommended for this project:

Final Pavement Design for:
 Suttle Lake - Sisters
 Santiam Hwy. No. 16
 MP 87.0 - MP 100.0
 Jefferson County
 PE000975/010
 Key No. 11173
 January 7, 2005

| MATERIALS | SPECIFICATION |
|-------------------------------|---|
| Level 3, 1/2" Dense HMA | Special Provision 00745. Lime or Latex Polymer treated aggregates are required. Smoothness spec is required. |
| Asphalt : 1/2" Dense HMA | PG 70-28. |
| Cold Plane Pavement Removal | Special Provision 00620. |
| Aggregate base (dense graded) | Special Provision 00641. |
| Subgrade Stabilization | Special Provision 00331. |
| Subgrade Geotextile | Special Provision 00350. If the estimated quantity is less than 10,000 square yards level B certification may be used. If greater than 10,000 square yards, Level A certification should be used. |

If there are any questions regarding the content or application of this design, please contact Roger Miles at (503) 986-3121.

Pavement Design Approved By:
 Cole F. Mullis, PE
 Pavement Design Engineer



Date Stamped: 7 Jan 05

Cc: Project Manager
 Roadway Designer
 Region Roadway Manager

Cold Springs Cutoff Road to Cascade Meadow Ranch Road
Santiam Highway (OR 126/US 20)
Deschutes County

Oregon Department of Transportation
ATA No. 22546, WOC No. 5
ODOT Key No. 11173

Appendix B

Revised Design Criteria Technical Memorandum

REVISED
Design Criteria
October, 2005

for

**Cold Springs Cutoff Road to Cascade Meadow Ranch
Road**

Santiam Highway (OR 126/US 20)
Deschutes County
ODOT Key # 11173
ODOT ATA # 22546, WOC # 5

Prepared for:
Oregon Department of Transportation
Region 4
63030 O.B. Riley Road
Bend, OR 97701
Consultant Project Manager: Stephanie Serpico, P.E.

Prepared by:
HDR Engineering, Inc.
1001 SW 5th Avenue, Suite 1800
Portland, OR 97204
Project Engineer: Brendan LeBlanc, P.E.

INTRODUCTION

The Cold Springs Cutoff Road to Cascade Meadow Ranch Road project is located on the Santiam Highway (OR 126/US 20) just west of Sisters, Oregon. The Oregon Department of Transportation (ODOT) proposes to provide improved passing opportunities on the existing highway by adding a passing lane with a westbound left turn refuge on the west end of the passing lane, as follows:

Passing Lane

(MP 96.31 to MP 97.47)

Widen the highway equally on both sides of the existing highway to provide the two additional 12 foot wide passing lanes (one in each direction of travel) that are proposed in this section.

Westbound Left Turn Refuge

(MP 95.86 to MP 96.31 including the new no passing striping west of the construction)

Construct a westbound center left turn refuge for Cold Springs Cutoff Road. The length and widths for the left turn refuge will be in accordance with ODOT Standard Drawing TM539. The minimum storage length shown in the Standard Drawing will be provided since traffic counts taken by ODOT in July 2005 did not reveal a high left turn volume at this intersection. The left turn refuge will be offset to the south side of centerline to give a more visually effective end to the passing lane prior to the left turn refuge. This layout will give the visual cue of the passing lane ending prior to the turn refuge even if the pavement markings are obscured.

Construction is scheduled for the year 2006 (bid opening in February 2006). The programmed construction cost is \$2.51 million (including Construction Engineering and Contingencies).

EXISTING CONDITIONS

This segment of the Santiam Highway (OR 126/US 20) is a rural two lane highway, with existing (year 2001) average daily traffic of about 7,700 vehicles per day (vpd) (projected to increase to about 11,000 vpd by the year 2021). The posted speed limit is 55 mph. There is an existing southbound passing lane between mile post 88.7 and mile post 90.4.. The terrain is flat to rolling. The existing horizontal alignment in both passing lane sections is a tangent. Grades are relatively gentle, under 1%. Travel lanes are 12 feet wide. The paved shoulders are five to six feet wide. Passing is allowed through most of the project area, except near various road intersections. The existing drainage facilities in the two passing lane sections are limited to a couple of small diameter cross drain pipes.

DESIGN STANDARDS

The following design standards will be utilized for the design of this project:

- Design elements will be developed according to the *ODOT 2003 Highway Design Manual*. The project will be designed in English units of measurement.
- Pavement design was completed by ODOT in January 2005.
- The traffic design will be completed utilizing the *MUTCD 2003, Manual of Uniform Traffic Control Devices*, the *ODOT Traffic Control Plans Manual*, and the *ODOT Traffic Sign Design Manual*.

PROJECT CONSTRAINTS

The following section summarizes constraints in the project area.

SITE CONSTRAINTS

There are no known geologic, topographic or hydrologic site constraints on this project. The project will follow the existing roadway grade line.

ENVIRONMENTAL CONSTRAINTS

Impacts to trees are to be minimized. Environmental reconnaissance performed by HDR and by Heritage Research Associates in the period from May 2005 through August 2005 revealed no Threatened, Endangered or Sensitive species, no archaeological or historic sites, no waterways or wetlands or other environmental constraints within the limits of the proposed project.

UTILITY CONSTRAINTS AND CONFLICTS

The existing utility facilities located in the project area include one underground copper telephone line and one underground fiber optic communication line along the north side of the highway, both owned by Qwest. Both lines are within ODOT's Special Use Permit area by ODOT utility permits, and so if relocation is necessary, no reimbursement is anticipated. Both of these lines would be under the proposed pavement surface for the passing lanes, so initially it was thought that both would have to be relocated. Qwest has said that they would like to abandon the existing copper telephone line in place.

During a utility coordination meeting on September 13, 2005, Qwest asked if it might be possible to leave the fiber optic line in place, although it would be under the new pavement surface through the passing lane section. Qwest indicated that this fiber optic line, which was installed in 2002, is buried about 48 inches deep. No excavations this deep are expected as part of the highway construction project. Those present at this utility coordination meeting indicated their support for this proposal, with several provisions:

1. Qwest must obtain concurrence from ODOT's District Permits Specialist that leaving the fiber optic line under the new pavement surface is acceptable.
2. Qwest must perform utility test-hole ("pothole") excavations at intervals no further than every 500 feet within the limits of the proposed highway project, to verify the depth of the fiber optic line.

If the fiber optic line must be relocated, it was agreed that, to minimize impacts to trees, it can be relocated within the proposed new outside ditch slope, at least 36 inches below the bottom of the new ditch. Qwest would need a 60 day window in which to install a new fiber optic line.

Qwest has indicated a desire to abandon the copper telephone line in place. This line, which Qwest said is technically still "live," is most likely not deep enough to avoid conflicts with the proposed highway widening. Qwest has not indicated a desire to replace the existing copper line. Per a June 30, 2005 email from Robert Morrow of ODOT Region 4, "Qwest may abandon the older copper line in place as long as it does not interfere with any new construction, as for the relocate of the fiber optic line we are in agreement with the plan of installing the new line in the back of slope with a minimum depth of 36" from the bottom of ditch to the top of the new lines." If Qwest must relocate the fiber optic line, it is likely they will not be able to do so until the trees and stumps/roots are removed from the area to be cleared for the new highway ditch slopes on

the north side of the highway. Jeff Sims of the USFS indicated that, while the USFS will not remove tree stumps or roots, they may be able to initiate a timber sale in October 2005, perhaps allowing the trees to be cut before the end of the year. Currently it is anticipated that the fiber optic line will remain in place.

PERMIT CONSTRAINTS

No permits are anticipated.

RIGHT-OF-WAY CONSTRAINTS

This segment of the Santiam Highway is located within a Special Use Permit easement on lands of the U. S. Forest Service (USFS). The existing Special Use Permit area is about 132 feet wide. All proposed project construction will be within the existing USFS Special Use Permit easement. Additional right of way will not be required for this project.

PAVEMENT DESIGN

The surfacing recommendations for this project are (per the January 7, 2005 ODOT Pavement Design Report) as follows:

New Construction

- 3.0" Level 3, ½" Dense Graded HMAC Wearing Course
- 5.0" Level 3, ½" Dense Graded HMAC Base Course (2 lifts)
- 14.0" Aggregate Base (¾"-0 or 1"-0)
- Subgrade Geotextile

Rehabilitation

- 3.0" Level 3, Dense Graded HMAC Wearing Course, Lime Treated (inlay)
- 2.0" Cold Plane Pavement Removal (full width)

PROJECT DESIGN CRITERIA

The following are the design criteria proposed for this project:

| Table 1. Santiam Highway, Cold Springs Cutoff Road to Cascade Meadow Ranch Road: Project Design Criteria | | |
|--|---|---|
| 2003 ODOT HDM English 4-R Standards for an Rural Arterial | | |
| Design Elements | 4-R Standards for Rural Arterial | Proposed Criteria for Project |
| Posted Speed | N/A | 55 mph |
| Design Speed | 60 mph | 60 mph |
| Travel Lanes | 12.0' inside lane 12.0' outside lane | 12.0' inside lane 12.0' outside lane |
| Right Shoulder | 6.0' | 6.0' |
| Left Shoulder | 6.0' | 6.0' |
| Striped Median | 2.0' | 2.0' |
| Normal Crown Slope | 2% | 2% |
| Maximum Superelevation | 8% | N/A (tangent) |
| Maximum Degree of Curve | 5 degree | N/A (tangent) |
| Maximum Grade | 4% | <4% |
| Minimum Length of Passing Lane | 1250' | 1250' |
| Taper Rates | L=WS lane drop ½L lane addition | L=WS lane drop ½L lane addition |
| On-Street Parking | Not allowed | Not allowed |
| Vertical Clearance | 17.0' | N/A (no structures) |
| Right of Way Width | 132' | 132' |

The proposed design will use the recommended 4:1 foreslopes from the ODOT Highway Design Manual for 6' shoulders under a 4-R Standard for Rural Arterial. Since there are no curves on this segment of roadway it is not necessary for the ditch backslope to be flat enough to fall within

the AASHTO Roadside Design Guide preferred channel cross section. 4:1 ditch backslopes will be used for the design.

The AASHTO Roadside Design Guide recommended clear zone of 28' from the traveled way in the ditch sections and 30' from the traveled way in the embankment sections will be met.

The recovered right of way alignment on this segment of highway does not lie in the center of the existing pavement. A construction centerline consisting of a 3.0' offset of the recovered right of way alignment will be used for this project since the 3.0' offset better matches the center of the existing pavement. Stationing of the construction centerline will match the recovered right of way alignment stationing to avoid the complications of having two different sets of stationing.

PROPOSED DESIGN EXCEPTIONS AND/OR DESIGN CONCURRENCES

No design exceptions or design concurrences appear to be required for this project.

Cold Springs Cutoff Road to Cascade Meadow Ranch Road
Santiam Highway (OR 126/US 20)
Deschutes County

Oregon Department of Transportation
ATA No. 22546, WOC No. 5
ODOT Key No. 11173

Appendix C

Construction Cost Estimate

Cold Springs Cutoff Road to Cascade Meadow Ranch Road - Preliminary Cost Estimate (10-14-05)

| Bid Item | Description | Units | Work Class | Remarks | Unit Cost | Passing & Turn Lane Quantity | Passing & Turn Lane Cost | Total Cost |
|---|--|-------|------------|----------------------|------------------------------|------------------------------|--------------------------|--------------------|
| Initial & Temporary Items | | | | | | | | |
| 0210-010000A | MOBILIZATION | LS | n/a | | | 8% | \$129,262 | \$129,262 |
| 0225-010000A | TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC | LS | 13 | | | 3% | \$48,473 | \$48,473 |
| 0225-010200J | TEMPORARY SIGNS | SQFT | 13 | | \$17.00 | 616 | \$10,472 | \$10,472 |
| 0225-010500E | TEMPORARY BARRICADES, TYPE III | EACH | 13 | | \$125.00 | 8 | \$1,000 | \$1,000 |
| 0225-014200E | SURFACE MOUNTED TUBULAR MARKERS | EACH | 13 | | \$56.00 | 225 | \$12,600 | \$12,600 |
| 0225-014500E | TEMPORARY PLASTIC DRUMS | EACH | 13 | | \$45.00 | 165 | \$7,425 | \$7,425 |
| 0225-014800E | TEMPORARY REFLECTIVE PAVEMENT MARKERS | EACH | 13 | | \$4.40 | 1375 | \$6,050 | \$6,050 |
| 0225-015100F | TEMPORARY REMOVABLE TAPE | FOOT | 13 | | \$1.50 | 17002 | \$25,503 | \$25,503 |
| 0225-015200F | TEMPORARY STRIPING | FOOT | 13 | | \$0.07 | 59500 | \$4,165 | \$4,165 |
| 0225-015400F | STRIPE REMOVAL | FOOT | 13 | | \$0.50 | 25500 | \$12,750 | \$12,750 |
| 0225-016800T | FLAGGERS | HOUR | 13 | | \$29.00 | 350 | \$10,150 | \$10,150 |
| Erosion Control (estimated lump sum) | | | | | | | \$12,000 | \$12,000 |
| Roadwork | | | | | | | | |
| 0305-010000A | CONSTRUCTION SURVEY WORK | LS | 12 | | | 1% | \$16,158 | \$16,158 |
| 0310-010800A | REMOVAL OF DELINEATORS | LS | 1 | | | | \$2,500 | \$2,500 |
| 0310-013100F | ASPHALT PAVEMENT CUTTING | FOOT | 1 | Requires Special | \$1.00 | 17002 | \$17,002 | \$17,002 |
| 0320-010000A | CLEARING AND GRUBBING | LS | 1 | | | | \$25,000 | \$25,000 |
| 0330-010500K | GENERAL EXCAVATION | CUYD | | | \$7.00 | 18840 | \$131,880 | \$131,880 |
| 0340-010000Q | WATERING | LS | 1 | | | | \$7,500 | \$7,500 |
| 0350-010500J | SUBGRADE GEOTEXTILE | SQYD | 1 | | \$1.00 | 38063 | \$38,063 | \$38,063 |
| 0445-010018AF | 18 INCH CULVERT PIPE, 5 FT DEPTH | FOOT | 1 | | \$48.00 | 93 | \$4,464 | \$4,464 |
| Bases | | | | | | | | |
| 0620-010500J | COLD PLANE PAVEMENT REMOVAL, 0 - 2-1/2 INCH DEEP | SQFT | 12 | May be deleted later | \$0.50 | 244393 | \$122,197 | \$122,197 |
| 0641-011200M | 3/4 INCH - 0 AGGREGATE BASE | TON | 5 | | \$13.00 | 34093 | \$443,209 | \$443,209 |
| Wearing Surfaces | | | | | | | | |
| 0730-010000M | ASPHALT IN TACK COAT | TON | 6 | | \$190.00 | 18.9 | \$3,591 | \$3,591 |
| 0745-032200M | LEVEL 3, 1/2 INCH DENSE LIME TREATED HMAC | TON | 6 | | \$20.00 | 16460 | \$329,200 | \$329,200 |
| 0745-064200M | PG 70-28 ASPHALT IN HMAC | TON | 6 | | \$260.00 | 988 | \$256,880 | \$256,880 |
| 0749-010000E | EXTRA FOR ASPHALT APPROACHES | EACH | 6 | | \$350.00 | 2 | \$700 | \$700 |
| Permanent Traffic Control & Guidance Devices | | | | | | | | |
| 0840-010200E | DELINEATORS, TYPE 2 | EACH | 8 | | \$33.00 | 34 | \$1,122 | \$1,122 |
| 0840-010600E | MILEPOST MARKER POSTS | EACH | 8 | | \$68.00 | 4 | \$272 | \$272 |
| 0850-010300E | PAVEMENT LEGEND, TYPE B: ARROWS | EACH | 8 | | \$212.00 | 1 | \$212 | \$212 |
| 0851-010100F | PERMANENT PAVEMENT STRIPING TAPE, GROOVED | FT | 8 | | \$2.50 | 44326 | \$110,815 | \$110,815 |
| 0905-010000A | REMOVE EXISTING SIGNS | LS | 9 | | \$1,500.00 | 1 | \$1,500 | \$1,500 |
| 0910-010000K | WOOD SIGN POSTS | FBM | 9 | | \$6.00 | 100 | \$600 | \$600 |
| 0930-012900A | SQUARE TUBE SIGN SUPPORTS | LS | 9 | | \$2,000.00 | 1 | \$2,000 | \$2,000 |
| 0940-011300J | TYPE "G" SIGNS IN PLACE | SQFT | 9 | | \$20.00 | 44.27 | \$885 | \$885 |
| 0940-012100J | TYPE "R" SIGNS IN PLACE | SQFT | 9 | | \$15.00 | 6.25 | \$94 | \$94 |
| 0940-012400J | TYPE "W1" SIGNS IN PLACE | SQFT | 9 | | \$15.00 | 95.5 | \$1,433 | \$1,433 |
| 0940-013400J | TYPE "Y1" SIGNS IN PLACE | SQFT | 9 | | \$15.00 | 36 | \$540 | \$540 |
| Seeding & Replanting (estimated lump sum) | | | | | | | \$12,000 | \$12,000 |
| Total of Bid Items | | | | | | | \$1,809,666 | \$1,809,666 |
| ANTICIPATED ITEMS | | | | | | | | |
| | OIL ESCALATION | LS | 6 | | \$26,047.10 | 1 | \$26,047 | \$26,047 |
| | AC BONUS | LS | 6 | | \$29,518.55 | 1 | \$29,519 | \$29,519 |
| | | | | | 15% Construction Engineering | | \$271,450 | \$271,450 |
| | | | | | 15% Contingency | | \$271,450 | \$271,450 |
| Estimated Total Cost to Complete | | | | | | | \$2,408,131 | \$2,408,131 |

Appendix D Draft Access Management Strategy And Access List

Access Management Strategy

**Cold Springs Cutoff Road to Cascade Meadows Ranch Road Project
Santiam Highway (US20/OR126)
Deschutes County, Oregon
ODOT KEY NO. 11173
ATA # 22546, WOC # 5**

September 2005



Oregon Department of Transportation
Region 4
63030 O.B. Riley Road
Bend, OR 97701
Consultant Project Manager: Stephanie Serpico, PE



HDR Engineering, Inc.
1001 SW 5th Avenue, Suite 1800
Portland, OR 97204
Project Manager: Mark Shippen, PE

Draft Access Management Strategy

Cold Springs Cutoff Road to Cascade Meadow Ranch Road Santiam Highway (US-20/OR 126) Deschutes County Milepoint 95.86 to Milepoint 97.47

Introduction

Electronic versions of this report contain hyperlinks to referenced information. Hyperlinks are colored and underlined text.

This Access Management Strategy has been prepared to meet the provisions of Oregon Administrative Rule 734-051-0155 and the conditions of approval established by the Oregon Transportation Commission (OTC).

This strategy provides the access management actions needed to modernize the highway section in the Cold Springs Cutoff Road to Cascade Meadow Ranch Road Design Acceptance Package.

The project would improve passing opportunities on the existing highway by adding a passing lane with a westbound left turn refuge on the west end of the passing lane.

Passing Lane (MP 96.31 to MP 97.47)

It is proposed the highway be widened equally on both sides to provide two additional 12-foot-wide one-mile-long passing lanes (one passing lane in each direction of travel).

Westbound Left Turn Refuge (MP 95.86 to MP 96.31, including new no-passing striping west of the construction)

Construct a westbound center left turn refuge lane for Cold Springs Cutoff Road. The length and widths for the lane design will be in accordance with ODOT Standard Drawing TM539. The minimum storage length shown in the Standard Drawing will be provided as traffic counts taken by ODOT in July 2005 did not reveal a high left turn volume at this intersection. The left turn refuge will be offset to the south side of centerline to give a more visually effective end to the passing lane prior to the left turn refuge. This layout will give the visual cue of the passing lane ending prior to the turn refuge, even if the pavement markings are obscured.

The Access Management Strategy is presented in two sections. Section One, Strategy Implementation, states what short, medium and long-range actions are to be undertaken to:

- a. Promote safe and efficient operation of US-20 consistent with the highway classification and the highway segment designation;
- b. Provide a reasonable use of the adjoining property consistent with the the Deschutes National Forest Land and Resource Management Plan; and

- c. Provide a comprehensive, area-wide solution for local access and circulation that minimizes use of the state highway for local access and circulation.¹ Section Two provides information to support the action statements.

Section One Strategy Implementation

Definitions. Terms defined in Oregon Administrative Rule 734-051 shall have the same meaning when used in this strategy. In addition, the following terms used below shall mean:

Action, Long-Range are related to the planning horizon for the Deschutes National Forest Land and Resource Management Plan and the Deschutes County Transportation System Plan that are not accomplished either as short-range actions or medium-range actions. These may involve plan policy amendments and ordinance provisions, road construction, or permit conditions on approach road permits.

Action, Medium-Range are those taken after completion of the short range actions and completion of the project described in the Design Acceptance Package. Medium-range actions may involve plan policy amendments, road construction, or permit conditions on approach road permits.

Action, Short-Range are those taken before or during the construction of the project described in the Cold Springs Cutoff Road to Cascade Meadow Ranch Road Design Acceptance Package (DAP).

Approach Road means a public or private connection to US-20 providing vehicular access to and/or from US-20 and an adjoining property.

Approach Road, Private is an approach road to US-20 serving one or more properties.

Approach Road, Public is an approach road to US-20 serving public lands or multiple properties owned and operated by a public entity and providing connectivity to the local road system.

Short Range Actions.

- 1) The project as described in the Draft Design Acceptance Package is in the current Oregon Statewide Transportation Improvement Program (STIP), is funded for construction, and will be constructed in 2006.
- 2) This Access Management Strategy identifies the public and private approach roads to US-20 authorized by ODOT. No other public or private approach roads are authorized.

¹ See OAR 734-051-0155(4)(j).

- 3) The public road currently permitted under permit number 10A35543 at engineer's station 132+80 known as Cascade Meadow Ranch Road is authorized.
- 3) The public road currently permitted under permit number 10A35477 at engineer's station 199+71 known as Forest Road 500 is authorized. The approach road will remain in the current physical location at engineer's station 199+05.
- 4) The public road at engineer's station 226+67 known as Cold Springs Cutoff Road is authorized pending ODOT approval of a permit to construct an approach road.
- 5) No private approach roads to US-20 are authorized.
- 6) Roadside ditches will be constructed to discourage vehicles from using the existing access points that will be closed.
- 7) When constructed, the Cold Springs Cutoff Road to Cascade Meadow Ranch Road project will result in a highway section that meets the 1999 Oregon Highway Plan approach road spacing standards for Statewide Highways as modified by the August 17, 2005 amendments to the Oregon Highway Plan.
- 8) There are 7 approach roads eliminated by this strategy. Highway operations and safety conditions are improved by these actions.

Medium-Range Actions. Those actions included as Short Range Actions continue to be applicable. In addition, the following additional actions will apply:

- 1) The Oregon Department of Transportation will process an approach road permit to formalize Cold Springs Cutoff Road as an approved access point.
- 2) The US Forest Service and Oregon Department of Transportation will discourage vehicles from exiting or entering US-20 except at approved access points by the following:
 - a) Placement of unobtrusive obstructions constructed of natural materials (i.e. rocks, fallen trees, etc) outside of the highway clear zone, in areas that appear to be used by vehicles as unapproved access points.

Long-Range Actions. Those actions included as Short-Range or Medium-Range Actions continue to be applicable. In addition, the following additional actions will apply:

- 1) The Oregon Department of Transportation will continue to promote freight mobility by evaluating the need for future highway improvements on the route.

Section Two

Rationale for this Access Management Strategy

Introduction

This Access Management Strategy has been prepared to meet the provisions of Oregon Administrative Rule 734-051-0280, the 1999 Oregon Highway Plan requirements.

Land Use and Property Access Conditions

The Deschutes County Zoning Code (Code), Chapter 18.36, designates the Santiam Highway as a “Forest Use” zone. Within this zone, the construction of passing and travel lanes are permitted outright, unless the acquisition of right-of-way is required for the project. For right-of-way acquisition, the Code requires a conditional use permit. No right-of-way acquisition is required to construct the proposed project, so no conditional use permit is required.

The Deschutes National Forest Land and Resource Management Plan (Plan) identifies management directions of the Deschutes National Forest. The Plan lists general forest-wide management goals and goals associated with various forest-wide activities.

Land use within the project limits is expected to be timber land or other natural resources based usage into the foreseeable future.

Road Conditions

US-20 through the project limits is within the existing ODOT Special Use Permit area on lands of the US Forest Service. There is no existing right-of-way or easement for the highway, although ODOT intends to pursue conversion of the highway Special Use Permit into an easement.

Access control on US-20 through the project limits is a challenge because the flat topography and lack of obstructions provides few positive barriers to prevent vehicles from driving off the highway into the forest at almost any point within the project limits. Attempts to control access through installation of wooden bollards or other means have generally been only marginally successful.

On-street parking is not authorized on US-20.

Nine existing approach roads to US-20 have been identified within the project limits.

Figure 1 identifies the number and average approach road spacing within the project for all existing roads (public and private) intersecting with US-20.

Figure 1
Number and Average Spacing
Existing Public and Private Approach Roads

| Route | Approach Roads, North Side US-20 | North Side Average Road Spacing (feet) | Approach Roads, South Side US-20 | South Side Average Road Spacing (feet) |
|-------|----------------------------------|--|----------------------------------|--|
| US-20 | 5 | 1700 | 4 | 2125 |

The connectivity of public roads is a limiting factor for commercial vehicle traffic. The approach roads within the project limits are forest access roads and do not serve as major collectors or arterials. US-20 is the only road that can serve as a freight route. Most areas within USFS lands adjacent to the project section can be accessed from other routes besides US-20.

At the Access Management Subteam meeting held on September 13, 2005 it was determined that seven of the nine existing approach roads within the project were of limited value and could be eliminated.

US-20 is a two-lane road within the project limits. As a Principal Arterial (Oregon functional classification), it is the inter-regional highway connection to other portions of the state. Left and right turns to other roads occur directly from the existing travel lanes. There are currently no intersections with turn lanes within the project limits.

1999 Oregon Highway Plan

Public approach road spacing standards are based upon the highway classification and the posted speed. US-20 is identified as a Statewide Highway in the 1999 Oregon Highway Plan (OHP). The Oregon Transportation Commission has designated this segment of US-20 as an expressway. It is part of the National Highway System and an Oregon Scenic Byway. It has a functional class of Principal Arterial for the State of Oregon—second in importance only to the Interstate Highway routes. The OHP identifies the purpose of Statewide Highways as providing inter-urban and inter-regional mobility and connections to areas not directly served by Interstate Highways, with a secondary function to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed continuous flow operation, with minimal interruptions in urban areas (OHP, p 41).

The posted speed is 55 mph through the project.

On a Statewide Highway classed as a rural expressway, the 1999 Oregon Highway Plan as modified by the August 17, 2005 amendments establishes that the approach road spacing standard for public and private approaches is 5280 feet for a 55 mph or greater posted speed. The spacing for a rural expressway is to be used even if the expressway segment is not part of the Facility Plan.

The maximum allowable volume-to-capacity (v/c) ratio for this type of roadway as established in the Oregon Highway Plan (OHP) is 0.70. The maximum allowable volume-to-capacity (v/c) ratio for this type of roadway established in Table 10-1 of the Oregon Highway Design Manual is 0.60. The 2003 annualized Average Daily Traffic (ADT) volumes for this segment of the Santiam Highway would not have technically exceeded either of these v/c ratios. But, it is apparent that the maximum v/c ratio is often exceeded in the summer high tourist-season months (June, July, August and September). The forecasted annual average daily traffic for the year 2021 in the ODOT project prospectus is 11,000 vpd, which when translated to peak hour traffic volumes, would exceed both the maximum Oregon Highway Design Manual volume to capacity ratio and the maximum Oregon Highway Plan volume to capacity ratio for a two-lane highway.

Transportation System Plans and Comprehensive Plans

The Deschutes County Transportation System Plan (1998), Chapter 5.2a, references the potential need for the construction of passing lanes along the Santiam Highway west of the City of Sisters.

Analysis of Access Management Strategy compliance with transportation system plans and comprehensive plans.

This segment of US-20 is to be managed by the Oregon Department of Transportation as an expressway. The spacing standards established in the Oregon Highway Plan for a rural expressway with a two lane cross road establish a distance of 1320 feet on the cross road from the expressway to the first authorized approach entering the cross road. The Deschutes County Transportation System Plan states that ODOT will be notified of any proposed land use or development within 500 feet of a state highway or if the action will increase the ADT by more than 100 vpd at an intersection between a County road and a state highway. The Deschutes National Forest Land and Resource Management Plan does not appear to address the specifics of when ODOT would be notified of a new approach to a cross road intersecting a state highway. Enforcing the expressway access spacing restriction on the cross roads to US-20 may not be feasible without additional coordination between ODOT and the local agencies.

ACCESS LIST AND PROJECT PLAN

Project Name: Cold Springs Cutoff Road to Cascade Meadow Ranc

E/A:

Hwy: Santiam Highway

Key #: 11173

Team Leader Modified

Created By: Brendan LeBlanc - HDR Inc R/W Modified By:
Date: 9/23/2005 Date:

District Modified By:
Date:

Traffic Modified By: Dan Serpico
Date: 9/30/2005

by:
Date:

| Physical Inventory | | | | | | | Not needed for most Pres. | | | District Data | | | | | | Project Plan | | | Action By District | Action By R/W | Action By Others | |
|--|--------------|-------|------------------|-----------------|---------------------------|---|---------------------------|---------|--------------|---------------|-------------------|--------------|----------------------|--------------|--|--------------------------|--|-------------------|-----------------------------|----------------------|------------------|--|
| SIDE (L/R) | STATION (ft) | MP | EXTG. WIDTH (ft) | SURFACE TYPE | PROPERTY USE | Property Address | Ownership | Tax Lot | R/W File No. | SIDE (L/R) | Permitted (no/P#) | STATION (ft) | PERMITTED WIDTH (ft) | SURFACE TYPE | PERMITTED USE | Reservation Width (m/ft) | DETERMINATION | CONST. WIDTH (ft) | COMMENTS | | | |
| US-20 | | | | | | | | | | | | | | | | | | | | | | |
| RT | "S" 132+80 | 97.88 | ? | HMAC | Cascade Meadow Ranch | | | | | RT | 10A35543 | 132+80 | 24 | A/C | Cascade Meadow Ranch, 24 lot subdivision | | | | Off Project | | | |
| LT | "S" 148+?? | 97.5? | ? | | Deschutes National Forest | Forest Road 160 | | | | | no | | | | | | | | Off Project | | | |
| Begin Project Sta "S" 153+84 (MP 97.47) | | | | | | | | | | | | | | | | | | | | | | |
| RT | "S" 160+31 | 97.35 | 37 | Gravel and Dirt | Deschutes National Forest | Forest Road 290 | | | | | no | | | | | | Close | | Connects to FS Rd 500 | Issue Closure Letter | | |
| LT | "S" 171+36 | 97.15 | 14 | Gravel and Dirt | Deschutes National Forest | Forest Road 234 | | | | | no | | | | | | Close | | Connects to Cold Springs Rd | Issue Closure Letter | | |
| LT | "S" 183+85 | 96.91 | 10 | Gravel and Dirt | Deschutes National Forest | Forest Road 540 | | | | | no | | | | | | Close | | Connects to Cold Springs Rd | Issue Closure Letter | | |
| RT | "S" 190+89 | 96.78 | 12 | Gravel and Dirt | Deschutes National Forest | No Name; possible cut across to Forest Road 200 | | | | | no | | | | | | Close | | Connects to FS Rd 500 | Issue Closure Letter | | |
| LT | "S" 196+46 | 96.67 | 22 | Gravel and Dirt | Deschutes National Forest | Forest Road 200 or 820 | | | | | no | | | | | | Close | | Connects to Cold Springs Rd | Issue Closure Letter | | |
| RT | "S" 197+37 | 96.66 | 29 | Gravel and Dirt | Deschutes National Forest | Apparent original entrance to Forest Road 500 | | | | | no | | | | | | Close | | Connects to FS Rd 500 | Issue Closure Letter | | |
| RT | "S" 199+05 | 96.59 | 16 | HMAC | Deschutes National Forest | Forest Road 500 | | | | RT | 10A35477 | 199+71 | 24 | A/C | Commercial - Aggregate Production | | Pave approach at existing width | 16 | Const 30' Radii | | | |
| LT | "S" 226+67 | 96.09 | 26 | HMAC | Deschutes County | Cold Springs Cut-off Rd. | | | | | no | | | | | | Pave approach at existing width and process permit application | 26 | Const 30' Radii | Issue Permit | | |
| RT | "S" 238+15 | 95.85 | 15 | Gravel | Deschutes National Forest | No Name | | | | | no | | | | | | Close | | Connects to FS Rd 500 | Issue Closure Letter | | |
| End of Project Sta "S" 238+85 (MP 95.86) | | | | | | | | | | | | | | | | | | | | | | |
| RT | ? | 95.28 | ? | Gravel | Deschutes National Forest | Forset Road 2059 | | | | | no | | | | | | | | Off Project | | | |

ACCESS LIST AND PROJECT PLAN

| Physical Inventory | | | | | | | Not needed for most Pres. | | | District Data | | | | | | Project Plan | | | Action By District | Action By R/W | Action By Others | | |
|--------------------|--------------|-------|------------------|--------------|---------------------------|------------------|---------------------------|---------|--------------|---------------|-------------------|--------------|----------------------|--------------|---------------|--------------------------|---------------|-------------------|--------------------|---------------|------------------|--|--|
| SIDE (L/R) | STATION (ft) | MP | EXTG. WIDTH (ft) | SURFACE TYPE | PROPERTY USE | Property Address | Ownership | Tax Lot | R/W File No. | SIDE (L/R) | Permitted (no/P#) | STATION (ft) | PERMITTED WIDTH (ft) | SURFACE TYPE | PERMITTED USE | Reservation Width (m/ft) | DETERMINATION | CONST. WIDTH (ft) | COMMENTS | | | | |
| US-20 | | | | | | | | | | | | | | | | | | | | | | | |
| LT | ? | 94.90 | ? | Gravel | Deschutes National Forest | Fprest Road 300 | | | | | no | | | | | | | | | | | | |

There are 9 accesses within the project limits. Most are Forest Service Roads.
 There is 1 road - Cold Springs Cutoff Rd. - which appears to be a county road. 2
 accesses are not identified and appear to be for the purpose of cutting across from
 Hwy. 20 to a Forest Service Road.

Appendix E

Draft DAP and DAW Review Comments and Responses

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
 Draft Design Acceptance Package
 Review Comments & Responses

Memo

Date: 10/04/05

**RE: Draft Design Acceptance Review Comments and Responses
 And Design Acceptance Workshop Comments and Responses
 US20: Cold Springs Cutoff Road to Cascade Meadow Ranch Road
 Key #11173**

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|-------------|----------|---|---|--------------------------------|---|
| Jon Heacock | 2, 2c-13 | Pavement design states that shoulders could be incorporated in the new travel lanes. Should incorporate this into the design to conserve dollars. | The pavement design report also states that the construction joint needs to be on a lane line or in the middle of a lane. The draft DAP plans were prepared with the joint within a foot of a lane line. Incorporating the entire shoulder would put the joint near a wheel path. | Brendan LeBlanc | Stephanie will check with Roger Miles regarding a possible adjustment to the saw cut lines. However, for the Final DAP, the cut lines will remain as they are. Any revisions to this will be made in the Advance Plan stage. |
| Jon Heacock | 2, 2c-13 | ODOT to contact pavement designer to ask to change design from 2" grindout / 3" overlay to 1" grindout / 3" overlay. | Noted -- need to have resolution of this issue ASAP to allow project design to proceed on schedule. | Mark Shippen | Stephanie will check with Roger Miles to see if it would be possible to forego the milling at all and establish 2% cross-slopes with overlay only. The typical sections in the Draft DAP will remain as-is in the Final DAP -- changes will be made in the Advance Plans, if needed. Slope will remain at 2% per consensus at the DAW. |
| Jon Heacock | 2, 2a | Typicals: slope should be variable not 2% | A variable slope could cause pavement drainage problems -- the existing pavement cross slope has flat spots, and the highway grade is also relatively flat. In order to drain the new wider highway, it is desirable to try to establish a normal 2% cross slope unless doing so is cost prohibitive. | Mark Shippen & Brendan LeBlanc | |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
Draft Design Acceptance Package
Review Comments & Responses

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|-------------|-------------|--|--|-----------------|---|
| Jon Heacock | 2, 2a, 2a-2 | Center typical: need to show existing pavement width. | HDR will revise in the Final DAP. | Lesli Merhaut | See response. |
| Jon Heacock | 2, 2a | Need to show embankment slopes as well as cut slopes. | No embankment slopes proposed along main roadway of this project. | Lesli Merhaut | In order to forestall any confusion on the part of the contractor, embankment slopes will be shown on the typicals as well as the ditches |
| Jon Heacock | 2c | Review staging based on ability to keep existing shoulders. | Staging would still be basically the same with retaining the shoulders. With the exception that in Stage I the traffic may be able to stay in the existing lanes. | Brendan LeBlanc | Will review |
| Jon Heacock | 3 | Either need to eliminate grades and match existing edge of pavement and pave on existing super or show leveling over existing. | Proposal to remove the grades from the Final DAP plan sheets is acceptable to HDR. Options for how to address milling and overlay paving will be explored with the Project Team at the DAW. Because of the irregular cross-slopes in the existing pavement, an office calculated grade book would be needed for a leveling course. | Brendan LeBlanc | Profile and grades will remain in Final DAP. Depending on decision(s) regarding pavement design and method to be used to construct 2% cross slope, profile and vertical grades may be removed from the Advance Plans. |
| Jon Heacock | 3 | Need to show earthwork brackets for east and west sides on profiles on all sheets. | HDR will revise profiles to show earthwork brackets. | Lesli Merhaut | If the profile is kept in the plans, brackets will be added. |
| Jon Heacock | 7 | Review north side of roadway. Looks like ditches need to be deeper in the cut section where installing cmp. | At this point, the ditch is 2'-4" deep. CMP is 12", RD380 stipulates min. cover of 1' from top of pipe to subgrade. Will evaluate. | Lesli Merhaut | This pipe is to be removed in Final DAP. ODOT maintenance sees no need for it. |
| Jon Heacock | 9 | Review south ditch depth for cmp at access. | At this point, the ditch is 2'-4" deep. CMP is 12", RD380 stipulates min. cover of 1' from top of pipe to subgrade. Will evaluate. | Lesli Merhaut | Will be evaluated. |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
 Draft Design Acceptance Package
 Review Comments & Responses

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|-------------------|----------------------|--|---|-----------------|--|
| Jon Heacock | general | Are there any special requirements for the FS: Are metal sign posts ok? Do the back of the signs have to be painted? | HDR will check with Forest Service. | Mark Shippen | HDR will check with USFS – if special requirements are needed, they will be reflected in the Advance Plans. |
| Jon Heacock | general | Delineator type? | HDR will specify delineator type in the Final DAP. | Lesli Merhaut | Joel McCarroll has specified the flex type, which is Type 2 or 3. Plans and cost estimate will be revised |
| Jon Heacock | Estimate | Not enough watering to handle dust control | HDR will add additional watering quantity in the Final DAP. | Brendan LeBlanc | See response. |
| Jon Heacock | Estimate | where are the rumble strips | HDR will add rumble strips in the Final DAP. | Brendan LeBlanc | Per discussion with Stephanie Serpico following the Design Acceptance Workshop, rumble strips will not be included in the project. |
| Stephanie Serpico | staging | Is it the most economical to use temporary striping versus reflective tabs? | The temporary reflective markers are shown to add emphasis to the painted striping when the centerline is shifted. The most economical is painted markings. The Draft DAP plans show temporary tape for temporary marking on the final paving lift. | Brendan LeBlanc | This will be evaluated further during development of the Advance Plans. |
| Stephanie Serpico | 4 - 9 | Show or note accesses being closed. | HDR will add notes for accesses being closed in the Final DAP. | Lesli Merhaut | See response. |
| Stephanie Serpico | Narrative | Should change references of “mp 87 to 100” to “96 to 98” throughout the document. | HDR will revise in the Final DAP. | Lesli Merhaut | See response. |
| Stephanie Serpico | DAP Narrative page 2 | Existing conditions paragraph, 3 rd sentence “There is an existing southbound...90.4” should be deleted. | HDR will delete from the Final DAP. | Lesli Merhaut | See response. |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
Draft Design Acceptance Package
Review Comments & Responses

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|-------------------|----------------------|---|---|-----------------|--|
| Stephanie Serpico | DAP Narrative page 2 | Proposed solution paragraph, number 1: Need to include information on environmental concerns and as well as the traffic impacts of why we did not keep this option. – the potential of westbound traffic backing up into Sisters. | Please clarify the comment about “the potential of westbound traffic backing up into Sisters” – it is not clear how any of the alternatives that were considered could have potentially resulted in westbound traffic backing up into Sisters (any more than traffic does today). | Mark Shippen | See the minutes of the DAW 10-7-05 |
| Stephanie Serpico | DAP Narrative page 3 | Number 2: this option could also mislead the driver into believing they are in a four lane section and not a passing lane. | HDR will add sentence to this effect in the Final DAP. | Lesli Merhaut | See response. |
| Stephanie Serpico | DAP Narrative page 4 | Environmental and Regulatory Constraints: should explain how the project was originally classified as a category 3 but was changed to a 2. | HDR will add text to provide explanation in the Final DAP | Mark Shippen | See response. |
| Stephanie Serpico | DAP Narrative page 4 | 3 rd sentence: “During construction, access to adjoining secondary roads would be maintained...unabated.” How / Why are we keeping the accesses open when they will be closed in the final configuration? | HDR will revise text to clarify the statement about maintaining access to USFS land during construction in the Final DAP. | Mark Shippen | The DAW resolved that these accesses will be closed before, during and after construction except for the Cold Springs Cutoff Road and Forest Road 500. These closed accesses will be noted in the narrative and in the plans |
| Stephanie Serpico | DAP Narrative page 6 | Right of Way Constraints: Last sentence “...does not have to be completed prior to construction.” Is this true? Need to confirm. | Confirmed - conversion of the existing highway Special Use Permit to an easement is a programmatic action ODOT is taking for the entire highway within USFS lands, and is not necessary prior to construction of this project | Mark Shippen | See response. This response was brought up in the DAW and confirmed by ODOT. |
| Stephanie Serpico | DAP Narrative | Include access list and strategy as an appendix. | HDR will include in the Final DAP. | Brendan LeBlanc | See response. |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
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| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|-------------------|-------------------------|---|---|-----------------|---|
| Stephanie Serpico | QA checklist | Remove this from the DAP | HDR will remove the QA checklist from the Final DAP. | Brendan LeBlanc | See response. |
| Gary Larson | Plan Sheets 8, 9, 10 | Revise - Range is 9E instead of 10E | HDR will revise in the Final DAP. | Lesli Merhaut | Changed |
| Joel McCarroll | Cost Estimate | The cost estimate has a bid item for hot inlaid tape. I believe this is the process where the tape is rolled directly into the hot asphalt. This method of installation does not protect the tape from snow plow damage. We prefer to set the tape in a ground in slot. It is separate spec and bid item from hot inlaid tape. The good news is we are getting bids on the order of \$2.50 a foot. The bid item for hot inlaid tape had a unit cost of \$2.00 so it won't raise the cost very much. | HDR will revise this bid item in the Final DAP and add the correct specification to the special provisions in the Advance PS&E. | Lesli Merhaut | See response. |
| Joel McCarroll | Striping/ Signing Plans | You might think of having the consultant combine signing and striping plans on the same sheets. It will save sheets, and neither of the sheets is very crowded. | HDR will combine the signing and striping plans in the Advance Plans, per direction from Stephanie Serpico. | Mark Shippen | Signing and striping sheets will remain separated for Final DAP, but will be combined in the Advance Plans. |
| Joel McCarroll | Sign Plans | I would suggest adding the sign DO NOT PASS SNOWPLOWS ON RIGHT (OR 22-9) near the beginning of each passing lane. We generally install these on all passing lanes. | HDR will add these signs in the Final DAP. | Lesli Merhaut | See response. |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
 Draft Design Acceptance Package
 Review Comments & Responses

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|----------------|----------------|---|---|---------------|------------------|
| Joel McCarroll | Sign Plans | Sign #11 and Sign # 17 are USFS routes and will need the USFS route shields. | HDR will add/revise in the Final DAP. | Lesli Merhaut | See response. |
| Joel McCarroll | Sign Plans | Sign #11 can be installed on the same posts that hold Sign #'s 13, 14 and 15. | HDR will revise in the Final DAP. | Lesli Merhaut | See response. |
| Joel McCarroll | Sign Plans | Sign #'s 13 and 14 should have the arrows centered between the text. | HDR will revise in the Final DAP. | Lesli Merhaut | See response. |
| Joel McCarroll | Sign Plans | Sign #17 has a route shield for USFS 500 with a right arrow and 1/4 MI rider. The route shield with a RIGHT (LEFT) 1/4 MILE would be easier to understand. Also Sign # 17 is for westbound traffic. There needs to be a separate sign for eastbound because the arrow or direction would be the opposite. | HDR will review route shields and most likely will revise per Joel's recommendation in the Final DAP. Will add separate signs for westbound/eastbound #17 in the Final DAP. | Lesli Merhaut | See response. |
| Joel McCarroll | Sign Plans | We should consider advance signing COLD SPGS CUTOFF in both direction. It could also include the USFS route shield. | HDR will add these signs in the Final DAP. | Lesli Merhaut | See response. |
| Joel McCarroll | Sign Plans | Jeff Lannigan said he would like a copy of the shop drawings that come with final submittal. | Covered under standard specifications. Will be included under the HDR WOC amendment for construction engineering and provided to Jeff. | Lesli Merhaut | See response. |
| Joel McCarroll | Striping Plans | The note on the striping plan says hot inlaid as I mentioned in #2 of the narrative it needs to be ground in. | HDR will revise this item in the Final DAP. | Lesli Merhaut | See response. |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
 Draft Design Acceptance Package
 Review Comments & Responses

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|--|----------------|--|--|---------------|------------------|
| Comments at the DAW October 7, 2005 | | | | | |
| Gary Larson | 1A | Index of sheets: revise sheet numbers for typical sections, revise sheet numbers for traffic control plans to add 2C-13 | HDR will revise and correct these | Lesli Merhaut | See response. |
| Gary Larson | Striping plans | Striping plans are shown prior to signing plans on sheet 1A, but were placed after signing sheets in the plans | HDR will place the striping plans in the correct order, which is before the signing plans. | Lesli Merhaut | See response. |
| Gary Larson | 2A-3 | No surfacing notes shown on left side of typical section | HDR will place these notes on the left side as well as the right | Lesli Merhaut | See response. |
| Gary Larson | 3 | Remove note 2 about telephone fiber optic line to be relocated if decision is made to allow it to stay; this note should be removed throughout all Alignment & General Construction sheets | HDR will remove per decision | Lesli Merhaut | See response. |
| Gary Larson | 5 | Note bubble 3 should bubble 2 | HDR will correct | Lesli Merhaut | See response. |
| Gary Larson | 6 | One note bubble 3 should be bubble 2 | HDR will correct | Lesli Merhaut | See response. |
| Gary Larson | 7 | Note bubble leader 2 is pointing to wrong telephone line | HDR will correct | Lesli Merhaut | See response. |
| Gary Larson | 9 | Note bubble 4 is pointing to driveway instead of a telephone pedestal in note 4 | HDR will correct | Lesli Merhaut | See response. |
| Gary Larson | Signing sheets | Remove "All dimensions are in millimeters..." as this is an English project | HDR will remove | Lesli Merhaut | See response. |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
 Draft Design Acceptance Package
 Review Comments & Responses

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|-------------|--------------------------------------|--|--|---------------|------------------|
| Gary Larson | DAP narrative page 4 | Revise last sentence under Environmental and Regulatory Constraints since roads to be closed will be closed prior to construction | HDR will edit this sentence. | Lesli Merhaut | See response. |
| Gary Larson | DAP narrative page 10 | Stage 1 of the Construction Needs: correct the 1 st sentence to say "Consists of widening the south side." | HDR will correct this sentence | Lesli Merhaut | See response. |
| Gary Larson | DAP Design Criteria Tech Memo page 2 | Passing Lane: change MP 97.54 to 97.47 to match DAP narrative Westbound Left Turn Refuge: change MP 95.74 to MP 95.86 and change MP 97.54 to MP 97.31 to match DAP narrative Revise sentence beginning "Construction is scheduled...(bid opening in March...) – revise March to February | HDR will correct these items | Lesli Merhaut | See response. |
| Gary Larson | DAP Design Criteria Tech Memo page 3 | In Utility Constraints and Conflicts, revise sentences to reflect that the copper line will be abandoned in place, and the fiber optic line will remain in place | HDR will edit this paragraph to so state | Lesli Merhaut | See response. |
| Jon Heacock | 2C-9, 2C-12 | Pattern for construction under traffic is wrong | HDR will revise pattern | Lesli Merhaut | See response. |
| Jon Heacock | Cost estimate | Add anticipated items Asphalt Bonus and Fuel Escalation | HDR will add these items to the Final DAP cost estimate. | Lesli Merhaut | See response. |

Cold Springs Cutoff Road to Cascade Meadow Ranch Road (Key # 11173)
 Draft Design Acceptance Package
 Review Comments & Responses

| Reviewer | Sheet # | Comment | Proposed Response | Respondent | Final Resolution |
|-------------------|---------------|---|---------------------------------|---------------|------------------|
| Michael Berg | 7 | Remove new pipe under Forest Road 500; it is not needed for drainage in this area | HDR will remove | Lesli Merhaut | See response. |
| Joel McCarroll | S-3 | Add Forest Road 500 signs at FR 500 on each side of road | HDR will add these signs | Lesli Merhaut | See response. |
| Stephanie Serpico | Cost estimate | Flagging hours are too low; should be reevaluated | HDR will reevaluate these hours | Lesli Merhaut | See response. |
| Stephanie Serpico | Cost estimate | Remove Subgrade Stabilization | HDR will remove this bid item | Lesli Merhaut | See response. |