

APPENDIX C

Design Exception Requests

**OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST**

For Roadway Section Office use only	
Control No:	

Section Name:	U.S. 97	Route No.:	US97
Highway Name:	The Dalles-California	Highway No.:	004
County Name:	Deschutes	Region:	4
		Key No.:	
		EA No.:	

PROJECT DATA

Functional Classification:	Urban Principal Arterial		
Current ADT (Year):	23,380 (2009)	Design ADT (Year):	31,450 (2030)
% Trucks:	9.9	Freight Route:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Posted Speed:	45 mph	Design Speed:	55 mph
		Bid Date:	
Funding:	House Bill 2001 (Oregon Jobs and Transportation Act)		
Current Estimate:	\$27M	Additional Cost to Meet Standard:	\$7-10M
Cost over \$5 M :	Yes <input checked="" type="checkbox"/>	Design Standard	3R <input type="checkbox"/> 4R <input checked="" type="checkbox"/>
Cost over \$1 M :	Yes <input type="checkbox"/>	SIP Category:	(1-5) 3
NHS:	<input checked="" type="checkbox"/>	Federal Highway Approval Required:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Non NHS:	<input type="checkbox"/>		

Design Exceptions		
<input type="checkbox"/> Design Speed	<input type="checkbox"/> Pavement Cross Slope	<input type="checkbox"/> Design Life and V/C Ratio
<input type="checkbox"/> Lane Width	<input type="checkbox"/> Superelevation	<input type="checkbox"/> Bike Lane/Multi-Use Path Width
<input type="checkbox"/> Shoulder Width/Shy Distance	<input type="checkbox"/> Clear Zone	<input type="checkbox"/> Sidewalk Width
<input type="checkbox"/> Bridge Width	<input type="checkbox"/> Structural Capacity	<input type="checkbox"/> Median Width
<input type="checkbox"/> Horizontal Alignment	<input type="checkbox"/> ADA Standards	<input type="checkbox"/> Parking Width
<input type="checkbox"/> Vertical Alignment	<input type="checkbox"/> Spiral Length	<input type="checkbox"/> Diagonal Parking
<input type="checkbox"/> Grade	<input type="checkbox"/> Superelevation Runoff	<input type="checkbox"/> Bridge Rail
<input type="checkbox"/> Stopping Sight Distance	<input type="checkbox"/> Pavement Design Life	<input type="checkbox"/> Vertical Clearance
<input checked="" type="checkbox"/> Interchange Spacing		<input type="checkbox"/> (Other)

Description of Exception:

A Design Exception is requested for the interchange spacing between 3rd Street and Powers Road along US97. The Oregon Department of Transportation Highway Design Manual (HDM) Table 9-2 Urban, Non-Freeway requires 1.9 miles between interchanges, measured from crossroad to crossroad. The proposed design locates the 3rd Street interchange 1.02 miles from the Powers Road interchange.

Description of Project (From Prospectus):

This project proposes to construct a new overpass structure at the intersection of 3rd Street and US97. The structure will be part of a new interchange that includes a southbound on-ramp to US97 and a northbound off-ramp to 3rd Street. Other elements of the project involve construction of Murphy Road on a new alignment between Brookwood Boulevard and 3rd Street including a second new overpass structure at US97, realigning Murphy Road between 3rd Street and Parrell Road, and replacing landscaped median with concrete median barrier on US97 (Bend Parkway).

Location of Design Feature:

US97 between 3rd Street and Powers Road.

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Crash History & Potential: (Specifically as it applies to requested exception)

The frequency of crashes along US97 from Powers Road to the southern city limit is not expected to change as a result of this interchange spacing. Crash history from 2005-2009 is as follows:

Section Description	Miles	Crashes ('09)	Crashes ('08)	Crashes ('07)	Crashes ('06)	Crashes ('05)
Powers Rd to S 3rd St	1.04	17	13	20	24	9
S 3rd St to City Limit	0.57	1	0	2	4	0

Reasons For Not Attaining Standard: (Such As Cost/ Benefit, Crash History, Environmental, Etc.)

In order to meet the HDM spacing standard the proposed 3rd Street interchange would need to shift south approximately 1 mile adding a needed extension to 3rd Street that would parallel US97 the same distance before the interchange outlet onto US97. Existing 3rd Street currently terminates at US97 150 feet south of the proposed 3rd Street structure. It is not feasible to extend 3rd Street 1 mile south to a new interchange access point for multiple reasons. Extending 3rd Street on a parallel alignment to US97 is beyond the scope of construction for this project and is not in line with stakeholder intentions. Property impacts would be significant if the standard spacing was applied. There is a newly established residential community that parallels US97 where multiple homes would need to be purchased for the new 3rd Street alignment.

Effect on Other Standards:

None.

Compatibility with Adjacent Sections:

The proposed 3rd Street interchange is 1.93 miles north of the existing Knott Road interchange. If the 3rd Street interchange were to move 1 mile south it would be in violation of HDM spacing standards with the Knott Road interchange.

Even though the spacing between Powers Road and the proposed 3rd Street interchange is 1.02 miles, the signalized intersection with Pinebrook Boulevard currently exists 0.33 miles north of the proposed 3rd Street interchange. This project will remove the signals at Pinebrook Boulevard and modify the intersection to a right-in, right-out only. Until removed, however, the current effects of this intersection also impact the intended limited access and free flow of an urban expressway.

Probable Time before Reconstruction of Section:

There is no anticipated reconstruction of US97 (Bend Parkway) within the next 15 years.

Mitigation For Exception Included In Design:

None.

Supporting Documentation (Include the appropriate Plan Section, Cross Section, Alignments Sheets & Plan Details): See attached Figure A-1

Signatures

Prepared By: _____

(Engineer of Record)

Date: _____

Print Name:	Ryan J. Brown	Phone:	503-736-4015
Company Name:	CH2M HILL		
Company Address:	2020 SW 4 th Ave.		
City:	Portland	ST:	OR
		Zip:	97201

Concurred By: _____

(ODOT Program Manager: Area Manager, District Manager, BDU, Private Public Partnerships, Local Government)

Date: _____

(Print Name)

**OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST**

Concurred By: _____ **Date:** _____
(ODOT Region Tech Center Manager or Region Roadway
Manager)

(Print Name)

Approved By: _____ **Date:** _____
(State Roadway Engineer)

(Print Name)

PREPARED BY:

**ENGINEER OF RECORD
PROFESSIONAL
ENGINEER STAMP**

APPROVED BY:

**STATE ROADWAY ENGINEER
PROFESSIONAL
ENGINEER STAMP**

**OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST**

For Roadway Section Office use only	
Control No:	

Section Name:	U.S. 97	Route No.:	US97
Highway Name:	The Dalles-California	Highway No.:	004
County Name:	Deschutes	Region:	4
		Key No.:	
		EA No.:	

PROJECT DATA

Functional Classification:	Urban Expressway		
Current ADT (Year):	23,380 (2009)	Design ADT (Year):	31,450 (2030)
% Trucks:	9.9	Freight Route:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Posted Speed:	45 mph	Design Speed:	55 mph
		Bid Date:	
Funding:	House Bill 2001 (Oregon Jobs and Transportation Act)		
Current Estimate:	\$27M	Additional Cost to Meet Standard:	Less than \$250,000
Cost over \$5 M :	Yes <input checked="" type="checkbox"/>	Design Standard	3R <input type="checkbox"/> 4R <input checked="" type="checkbox"/>
Cost over \$1 M :	Yes <input type="checkbox"/>	SIP Category:	(1-5) 3
NHS:	<input checked="" type="checkbox"/>	Top 10% SPIS Site:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Non NHS:	<input type="checkbox"/>	Federal Highway Approval Required:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Design Exceptions		
<input type="checkbox"/> Design Speed	<input type="checkbox"/> Pavement Cross Slope	<input type="checkbox"/> Design Life and V/C Ratio
<input type="checkbox"/> Lane Width	<input type="checkbox"/> Superelevation	<input type="checkbox"/> Bike Lane/Multi-Use Path Width
<input checked="" type="checkbox"/> Shoulder Width/Shy Distance	<input type="checkbox"/> Clear Zone	<input type="checkbox"/> Sidewalk Width
<input type="checkbox"/> Bridge Width	<input type="checkbox"/> Structural Capacity	<input type="checkbox"/> Median Width
<input type="checkbox"/> Horizontal Alignment	<input type="checkbox"/> ADA Standards	<input type="checkbox"/> Parking Width
<input type="checkbox"/> Vertical Alignment	<input type="checkbox"/> Spiral Length	<input type="checkbox"/> Diagonal Parking
<input type="checkbox"/> Grade	<input type="checkbox"/> Superelevation Runoff	<input type="checkbox"/> Bridge Rail
<input type="checkbox"/> Stopping Sight Distance	<input type="checkbox"/> Pavement Design Life	<input type="checkbox"/> Vertical Clearance
<input type="checkbox"/> Interchange Spacing		<input type="checkbox"/> (Other)

Description of Exception:

A Design Exception is requested for a reduction in left (inside) and right (outside) shoulder widths along US97 (Bend Parkway) for the two proposed bridges. The Oregon Department of Transportation Highway Design Manual (HDM) Table 8-1 specifies that 4 foot (inside) and 8 foot (outside) shoulders are required for Urban Expressways. The proposed inside shoulder width is narrowest at the bridge piers, 2 foot of shoulder plus 2 foot of shy distance. The proposed outside shoulder width along US97 is 6 feet through the project.

Description of Project (From Prospectus):

This project proposes to construct a new overpass structure at the intersection of 3rd Street and US97. The structure will be part of a new interchange that includes a southbound on-ramp to US97 and a northbound off-ramp to 3rd Street. Other elements of the project involve construction of Murphy Road on a new alignment between Brookwood Boulevard and 3rd Street including a second new overpass structure at US97, realigning Murphy Road between 3rd Street and Parrell Road, and replacing landscaped median with concrete median barrier on US97 (Bend Parkway).

Location of Design Feature:

The proposed median barrier will begin south of the existing US97/3rd Street at-grade intersection where existing median barrier has been terminated. The barrier will be centered within the US97 median and diverge at bridge piers for the 3rd Street and Murphy Road overpasses. The divergence at the bridge piers

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creates inside shoulder dimensions of 2 feet with an additional 2 feet of shy distance to the face of barrier. The outside shoulder dimension of 6 feet exists along the Bend Parkway through the entire project.

Crash History & Potential: (Specifically as it applies to requested exception)

The frequency of crashes along US97 from Powers Road to the southern city limit from 2005-2009 is as follows:

Section Description	Miles	Crashes ('09)	Crashes ('08)	Crashes ('07)	Crashes ('06)	Crashes ('05)
Powers Rd to S 3rd St	1.04	17	13	20	24	9
S 3rd St to City Limit	0.57	1	0	2	4	0

The proposed design is a departure from HDM Expressway standards, however, the new inside shoulder dimension will provide a larger buffer from the fog line to the face of barrier relative to existing conditions. This only increases driver comfort through the corridor by providing a greater offset to the face of a perceived obstacle and is therefore not expected to affect crash rates as a result of this shoulder width change.

Reasons For Not Attaining Standard: (Such As Cost/ Benefit, Crash History, Environmental, Etc.)

In order to meet standard inside shoulder widths required by the HDM, US97 would need to be realigned by moving the travel lanes east and west to accommodate the wider section. With this channelization shift, the added pavement widths would need to transition at both the 3rd Street and Murphy Road overpasses for approximately 300 feet at each structure location in both directions. Additional pavement would also be required to meet the outside shoulder width dimension required by the HDM. Widening the pavement along US97 would also require slightly longer bridge spans meaning increased structure costs and right-of-way impacts. Accommodating wider shoulders is not feasible due to the additional paving and structure costs required.

Effect on Other Standards:

None.

Compatibility with Adjacent Sections:

The existing inside shoulder on US97 is 2 feet from fog line to face of curbed median. The proposed design increases from existing conditions by 2 feet at the pinch points with bridge piers and by 6 feet everywhere else. The outside shoulder width will remain unchanged from existing conditions therefore matching adjacent outside shoulder widths of 6 feet.

Probable Time before Reconstruction of Section:

There is no anticipated reconstruction of US97 (Bend Parkway) within the next 15 years.

Mitigation For Exception Included In Design:

None.

Supporting Documentation (Include the appropriate Plan Section, Cross Section, Alignments Sheets & Plan Details): Design Acceptance Package - Roadway Plans and Typical Sections

Signatures

Prepared By: _____

(Engineer of Record)

Date: _____

Print Name:	Ryan J. Brown	Phone:	503-736-4015
Company Name:	CH2M HILL		
Company Address:	2020 SW 4 th Ave.		
City:	Portland	ST:	OR
		Zip:	97201

Concurred By: _____

(ODOT Program Manager: Area Manager, District Manager,

Date: _____

**OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST**

BDU, Private Public Partnerships, Local Government)

(Print Name)

Concurred By:

Date:

(ODOT Region Tech Center Manager or Region Roadway
Manager)

(Print Name)

Approved By:

Date:

(State Roadway Engineer)

(Print Name)

PREPARED BY:

**ENGINEER OF RECORD
PROFESSIONAL
ENGINEER STAMP**

APPROVED BY:

**STATE ROADWAY ENGINEER
PROFESSIONAL
ENGINEER STAMP**

**OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST**

For Roadway Section Office use only	
Control No:	

Section Name:	3rd Street (U.S. 97 Business)	Route No.:	US97 Bus.
Highway Name:	N/A	Highway No.:	N/A
County Name:	Deschutes	Region:	4
		Key No.:	
		EA No.:	

PROJECT DATA

Functional Classification:	Principal Arterial		
Current ADT (Year):	11,700 (2005)	Design ADT (Year):	14,150 (2030)
% Trucks:	5	Freight Route:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Posted Speed:	25 mph	Design Speed:	25 mph
		Bid Date:	
Funding:	House Bill 2001 (Oregon Jobs and Transportation Act)		
Current Estimate:	\$27M	Additional Cost to Meet Standard:	Less than \$150,000
Cost over \$5 M :	Yes <input checked="" type="checkbox"/>	Design Standard	3R <input type="checkbox"/> 4R <input checked="" type="checkbox"/>
Cost over \$1 M :	Yes <input type="checkbox"/>	SIP Category:	(1-5) 3
NHS:	<input checked="" type="checkbox"/>	Federal Highway Approval Required:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Non NHS:	<input type="checkbox"/>		

Design Exceptions		
<input type="checkbox"/> Design Speed	<input type="checkbox"/> Pavement Cross Slope	<input type="checkbox"/> Design Life and V/C Ratio
<input type="checkbox"/> Lane Width	<input type="checkbox"/> Superelevation	<input type="checkbox"/> Bike Lane/Multi-Use Path Width
<input checked="" type="checkbox"/> Shoulder Width/Shy Distance	<input type="checkbox"/> Clear Zone	<input type="checkbox"/> Sidewalk Width
<input type="checkbox"/> Bridge Width	<input type="checkbox"/> Structural Capacity	<input type="checkbox"/> Median Width
<input type="checkbox"/> Horizontal Alignment	<input type="checkbox"/> ADA Standards	<input type="checkbox"/> Parking Width
<input type="checkbox"/> Vertical Alignment	<input type="checkbox"/> Spiral Length	<input type="checkbox"/> Diagonal Parking
<input type="checkbox"/> Grade	<input type="checkbox"/> Superelevation Runoff	<input type="checkbox"/> Bridge Rail
<input type="checkbox"/> Stopping Sight Distance	<input type="checkbox"/> Pavement Design Life	<input type="checkbox"/> Vertical Clearance
<input type="checkbox"/> Interchange Spacing		<input type="checkbox"/> (Other)

Description of Exception:

A Design Exception is requested for a reduction in shy distance along the right side shoulders of 3rd Street. The proposed design of the 3rd Street shoulders does not account for the 2 foot "E" offset required for right side roadside barriers. The Oregon Department of Transportation (ODOT) Highway Design Manual (HDM) Chapter 5.4 stipulates that for right side roadside barriers an additional 2 feet of shy distance must be provided if the proposed shoulder width is less than 12 feet. The proposed design of the 3rd Street shoulders is 6 feet with no additional shy distance.

Description of Project (From Prospectus):

This project proposes to construct a new overpass structure at the intersection of 3rd Street and US97. The structure will be part of a new interchange that includes a southbound on-ramp to US97 and a northbound off-ramp to 3rd Street. Other elements of the project involve construction of Murphy Road on a new alignment between Brookwood Boulevard and 3rd Street including a second new overpass structure at US97, realigning Murphy Road between 3rd Street and Parrell Road, and replacing landscaped median with concrete median barrier on US97 (Bend Parkway).

Location of Design Feature:

The right side roadside barrier is located on the northbound and southbound shoulders of the proposed 3rd Street alignment between the 3rd Street overpass structure and the southern access points to Les Schwab

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and Central Lakes Marina. Functionally, this section of arterial roadway will be ODOT operated and maintained. North of the southern access points to Les Schwab and Central Lakes Marina, 3rd Street transitions to an urban section and will be maintained by the City of Bend.

Crash History & Potential: (Specifically as it applies to requested exception)

No crash data exists as this is a new arterial connection to an overpass.

Reasons For Not Attaining Standard: (Such As Cost/ Benefit, Crash History, Environmental, Etc.)

In order to meet standard shy distance widths required by the HDM, 3rd Street would need to be widened by 2 feet in the northbound and southbound shoulders for approximately 600 feet in both directions. The wider cross section of 3rd Street would create higher embankment slopes meaning increasing the height of two proposed retaining walls, a 90-foot retaining wall east of 3rd Street and a 180-foot retaining wall west of 3rd Street. The higher embankment slopes will also require more right-of-way adjacent to the retaining walls.

The proposed 3rd Street design between the Murphy Road/3rd Street roundabout and the 3rd Street overpass is considered an interim design with the primary goal of maintaining connectivity from southbound 3rd Street to southbound US97 and northbound US97 to northbound 3rd Street. The intent of the interim design is to utilize as small of a footprint as possible in order to minimize construction and right-of-way costs due to limited funding. The ultimate build scenario will reconstruct 3rd Street from the 2-lane interim to a 5-lane urban section with planters and sidewalks. The ultimate build will also widen the overpass structure from 2-lanes to 5-lanes as well as add ramps connecting southbound US97 to 3rd Street and 3rd Street to northbound US97. All of the right side roadside barrier will be removed in the ultimate build construction.

Accommodating shy distance along the right side shoulders is not feasible due to the increased project costs and compatibility with future expansion along this arterial road.

Effect on Other Standards:

None.

Compatibility with Adjacent Sections:

3rd Street transitions to 6 foot curbtight sidewalks and 6 foot bike lanes immediately north of the southern driveway accesses to Les Schwab and Central Lakes Marina. The proposed 6 foot shoulders adjacent to the right side roadside barrier south of these driveways is consistent with the rest of the 3rd Street design.

Probable Time before Reconstruction of Section:

The reconstruction of 3rd Street to the ultimate build 5-lane urban section is anticipated within the next 10 years (pending funding).

Mitigation For Exception Included In Design:

None.

Supporting Documentation (Include the appropriate Plan Section, Cross Section, Alignments Sheets & Plan Details): Design Acceptance Package - Roadway Plans and Typical Sections

Signatures

Prepared By: _____

(Engineer of Record)

Date: _____

Print Name:	Ryan J. Brown	Phone:	503-736-4015
Company Name:	CH2M HILL		
Company Address:	2020 SW 4 th Ave.		
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		Zip:	97201

Concurred By: _____

(ODOT Program Manager: Area Manager, District Manager,

Date: _____

**OREGON DEPARTMENT OF TRANSPORTATION
DESIGN EXCEPTION REQUEST**

BDU, Private Public Partnerships, Local Government)

(Print Name)

Concurred By:

Date:

(ODOT Region Tech Center Manager or Region Roadway
Manager)

(Print Name)

Approved By:

Date:

(State Roadway Engineer)

(Print Name)

PREPARED BY:

**ENGINEER OF RECORD
PROFESSIONAL
ENGINEER STAMP**

APPROVED BY:

**STATE ROADWAY ENGINEER
PROFESSIONAL
ENGINEER STAMP**

