



















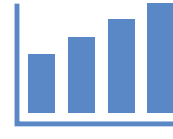






# ALTERNATIVE IMPACTS

## ALTERNATIVE IMPACT SUMMARY

ALTERNATIVE	Meets Project Purpose and Need				Natural/Built Environment Impacts					Costs	
	 Substantially Improve Average Per Person Travel Time (Across all travel modes for each user)	Substantially Reduce Vehicle Backups Distance from S.R. 209/S.R. 210 Intersection (Feet)		 Visual change	 Air quality standards exceeded	 Impacted noise receptors	 Water quality standards exceeded	 Relocations	 Capital costs	 O&M costs	
		 On S.R. 209	 On S.R. 210								
<b>No-Action Alternative</b>	<b>80-85 MIN</b>	<b>6,700</b>	<b>13,000</b>	<b>None</b>	<b>No</b>	<b>173</b>	<b>No</b>	<b>0</b>	<b>-</b>	<b>-</b>	
 <b>ENHANCED BUS</b> NO ADDITIONAL ROADWAY CAPACITY	<b>46 MIN</b>	<b>1,275</b>	<b>4,300</b>	<b>Low</b>	<b>No</b>	<b>173</b> + <b>57</b> No-action baseline Alternative noise impact	<b>No</b>	<b>1</b> (already acquired)	<b>\$355 M</b>	<b>\$14 M</b> Winter	
<span style="writing-mode: vertical-rl; transform: rotate(180deg);">Preferred Alternative</span>  <b>ENHANCED BUS</b> WITH ROADWAY WIDENING FOR PEAK-PERIOD (SHOULDER LANE)	<b>37 MIN</b>	<b>350</b>	<b>3,050</b>	<b>Medium</b>	<b>No</b>	<b>173</b> + <b>60</b> No-action baseline Alternative noise impact	<b>No</b>	<b>1</b> (already acquired)	<b>\$510 M</b>	<b>\$11 M</b> Winter	
 <b>GONDOLA A</b> WITH BUS FROM MOBILITY HUBS NO ADDITIONAL ROADWAY CAPACITY	<b>46 MIN</b>	<b>350</b>	<b>3,050</b>	<b>High</b>	<b>No</b>	<b>173</b> + <b>57</b> No-action baseline Alternative noise impact	<b>No</b>	<b>1</b> (already acquired)	<b>\$561 M</b>	<b>\$9.5 M</b> Winter <b>\$5 M</b> Summer	
<span style="writing-mode: vertical-rl; transform: rotate(180deg);">Preferred Alternative</span>  <b>GONDOLA B (FROM LA CAILLE)</b> WITH BUS FROM MOBILITY HUBS NO ADDITIONAL ROADWAY CAPACITY	<b>43 MIN</b> Driving to base station <b>45 MIN</b> Bus to base station	<b>350</b>	<b>3,050</b>	<b>High</b>	<b>No</b>	<b>173</b> + <b>57</b> No-action baseline Alternative noise impact	<b>No</b>	<b>1</b> (already acquired)	<b>\$592 M</b>	<b>\$7.6 M</b> Winter <b>\$3 M</b> Summer	
 <b>COG RAIL (FROM LA CAILLE)</b> WITH BUS FROM MOBILITY HUBS NO ADDITIONAL ROADWAY CAPACITY	<b>43 MIN</b> Driving to base station <b>45 MIN</b> Bus to base station	<b>350</b>	<b>3,050</b>	<b>Medium</b>	<b>No</b>	<b>173</b> + <b>58</b> No-action baseline Alternative noise impact	<b>No</b>	<b>1</b> (already acquired)	<b>\$1.106 B</b>	<b>\$7 M</b> Winter <b>\$2.2 M</b> Summer	

# ALTERNATIVE CONSIDERATIONS

## OTHER TRANSPORTATION PERFORMANCE CONSIDERATIONS

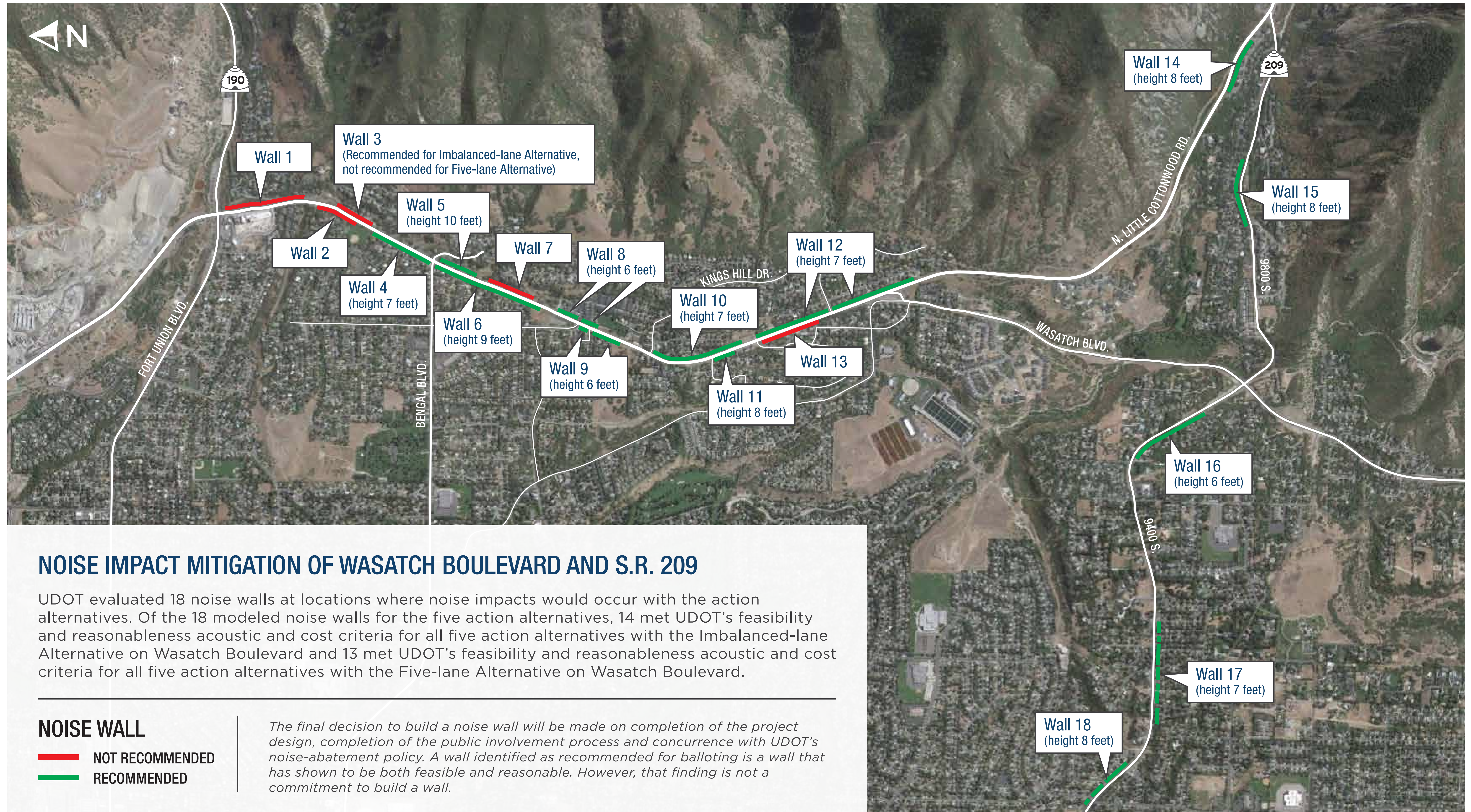
	 Mobility	 Travel Reliability	 Safety	 Scalability	 Supports Active Transportation	
	 <b>ENHANCED BUS</b> NO ADDITIONAL ROADWAY CAPACITY	<b>1,008</b> people per hour (Meets goal)	<ul style="list-style-type: none"> <li>Operate in same travel lane as personal vehicles</li> <li>Slide offs/crashes may block single lane</li> <li>Snow/icy conditions would slow service</li> </ul>	<ul style="list-style-type: none"> <li>Snow sheds lower risk of service delays due to avalanche mitigation</li> <li>Snow sheds improve roadway reliability and safety</li> </ul>	<ul style="list-style-type: none"> <li>Scalable - could start with a smaller bus fleet &amp; fewer mobility hub parking spaces</li> <li>Build on service as demand grows</li> </ul>	<ul style="list-style-type: none"> <li>No change to pedestrian/cyclist facilities</li> </ul>
Preferred Alternative	 <b>ENHANCED BUS</b> WITH ROADWAY WIDENING FOR PEAK-PERIOD (SHOULDER LANE)	<b>1,008</b> people per hour (Meets goal)	<ul style="list-style-type: none"> <li>Buses could operate around slide offs/crashes</li> <li>Snow/icy conditions would slow service</li> </ul>	<ul style="list-style-type: none"> <li>Snow sheds lower risk of service delays due to avalanche mitigation</li> <li>Snow sheds improve roadway reliability and safety</li> </ul>	<ul style="list-style-type: none"> <li>Scalable - could start with a smaller bus fleet &amp; fewer mobility hub parking spaces</li> <li>Build on service as demand grows</li> </ul>	<ul style="list-style-type: none"> <li>PPSL becomes pedestrian and cyclist lane when not in use</li> </ul>
	 <b>GONDOLA A</b> WITH BUS FROM MOBILITY HUBS NO ADDITIONAL ROADWAY CAPACITY	<b>1,050</b> people per hour (Meets goal)	<ul style="list-style-type: none"> <li>Not impacted by slide offs/crashes</li> <li>Gondola could operate while debris is removed from roadway</li> <li>Not impacted by snowfall</li> </ul>	<ul style="list-style-type: none"> <li>System would not operate during avalanche mitigation</li> <li>Snow sheds improve gondola and roadway safety and reliability</li> <li>Gondola alignment separate from roadway increases roadway safety</li> </ul>	<ul style="list-style-type: none"> <li>Not scalable - complete infrastructure required at start</li> </ul>	<ul style="list-style-type: none"> <li>No change to pedestrian/cyclist facilities</li> </ul>
Preferred Alternative	 <b>GONDOLA B (FROM LA CAILLE)</b> WITH BUS FROM MOBILITY HUBS NO ADDITIONAL ROADWAY CAPACITY	<b>1,050</b> people per hour (Meets goal)	<ul style="list-style-type: none"> <li>Not impacted by slide offs/crashes</li> <li>Gondola could operate while debris is removed from roadway</li> <li>Not impacted by snowfall</li> </ul>	<ul style="list-style-type: none"> <li>System would not operate during avalanche mitigation</li> <li>Snow sheds improve gondola and roadway safety and reliability</li> <li>Gondola alignment separate from roadway increases roadway safety</li> </ul>	<ul style="list-style-type: none"> <li>Not scalable - complete infrastructure required at start</li> </ul>	<ul style="list-style-type: none"> <li>No change to pedestrian/cyclist facilities</li> </ul>
	 <b>COG RAIL (FROM LA CAILLE)</b> WITH BUS FROM MOBILITY HUBS NO ADDITIONAL ROADWAY CAPACITY	<b>1,050</b> people per hour (Meets goal)	<ul style="list-style-type: none"> <li>Not impacted by slide offs/crashes</li> <li>Cog rail could not operate when debris is being removed from track</li> </ul>	<ul style="list-style-type: none"> <li>System would not operate during avalanche mitigation</li> <li>Rail alignment separate from roadway increases roadway safety</li> </ul>	<ul style="list-style-type: none"> <li>Not scalable - complete infrastructure required at start</li> </ul>	<ul style="list-style-type: none"> <li>6'-8' shoulder would be built between downhill travel lane and cog rail alignment</li> <li>Shoulder could be used by pedestrians/cyclists</li> </ul>

# ENVIRONMENTAL IMPACTS OF THE NO-ACTION AND PRIMARY ACTION ALTERNATIVES

IMPACT CATEGORY	UNIT	NO-ACTION ALTERNATIVE	ENHANCED BUS SERVICE	ENHANCED BUS SERVICE (IN PEAK-PERIOD SHOULDER LANE)	GONDOLA A (FROM LCC PARK-AND-RIDE)	GONDOLA B (FROM LA CAILLE)	COG RAIL (FROM LA CAILLE)
Land converted to alternative use	ACRES	0	115-120	151-156	127-132	158-163	212-217
Residential relocations	NUMBER	0	1	1	1	1	1
Potential business relocations	NUMBER	0	0	0	0	0	0
Recreation areas affected	NUMBER	0	2	4	3	3	5
Community facilities affected	NUMBER	0	0	1	1	1	1
Environmental justice impacts	YES/NO	NO	NO	NO	NO	NO	NO
Economic impacts	YES/NO	NO	NO	NO	NO	NO	NO
Existing Forest Service trails affected	NUMBER	0	0	1	1	1	1
Climbing resources (existing boulders and trails affected)	NUMBER	0	0	5	1	1	17
Air quality impacts above regulations	YES/NO	NO	NO	NO	NO	NO	NO
Receptors with modeled noise levels above criteria	NUMBER	173	213-230	216-233	213-230	213-230	213-230
Increase in impervious surface	ACRES	0	15.6-16.8	37.6-38.8	15.6-16.8	22-23.2	52.2-53.4
Water quality standards exceeded	YES/NO	NO	NO	NO	NO	NO	NO
Wildlife habitat impacted	ACRES	0	9-13	42-46	13-17	21-25	84-88
Threatened and endangered species	YES/NO	NO	NO	NO	NO	NO	NO
Impacts to waters of the United States	ACRES	0	0	0	0	0	0.01
Impacts to intermittent, perennial, and ephemeral streams	ACRES	0	0.03-0.17	0.32-0.46	0.03-0.17	0.03-0.17	0.35-0.49
Impacts to Riparian Habitat Conservation areas	ACRES	0	0.14-0.83	1.58-2.18	0.14-0.83	0.14-0.83	0.75-1.44
Adverse impacts to cultural resources	NUMBER	0	1	1	2	2	2
Hazardous waste sites affected	NUMBER	0	1	2	1	2	3
Floodplain impacts	ACRES	0	1.18-1.32	2.1-2.2	1.56-1.6	2.1-2.3	1.5-1.6
Visual change (primary alternative/supporting element)	CATEGORY	None	Negligible/high	Moderate/high	High/high	High/high	High/high
Section 4(f) uses (with greater-than-de minimis impact)	NUMBER	0	1	1	1	1	1

# NOISE IMPACTS

Receptors with Modeled Noise Greater than UDOT Noise Abatement Criteria (NAC) with No-Action Alternative.	WASATCH BOULEVARD ALTERNATIVES	Total Noise Impacts				
		ENHANCED BUS SERVICE	ENHANCED BUS SERVICE (IN PEAK-PERIOD SHOULDER LANE)	GONDOLA A (FROM LCC PARK-AND-RIDE)	GONDOLA B (FROM LA CAILLE)	COG RAIL (FROM LA CAILLE)
173	IMBALANCED-LANE ALTERNATIVE	213	216	213	213	213
	FIVE-LANE ALTERNATIVE	230	233	230	230	230



## NOISE IMPACT MITIGATION OF WASATCH BOULEVARD AND S.R. 209

UDOT evaluated 18 noise walls at locations where noise impacts would occur with the action alternatives. Of the 18 modeled noise walls for the five action alternatives, 14 met UDOT's feasibility and reasonableness acoustic and cost criteria for all five action alternatives with the Imbalanced-lane Alternative on Wasatch Boulevard and 13 met UDOT's feasibility and reasonableness acoustic and cost criteria for all five action alternatives with the Five-lane Alternative on Wasatch Boulevard.