



DRAFT

Environmental Impact Statement

AND SECTIONS 4(F)/6(F) EVALUATION FOR

Little Cottonwood Canyon

S.R. 210 | Wasatch Boulevard to Alta

in Cottonwood Heights, Sandy, the Town of Alta,
and Salt Lake County, Utah

Volume 2: **Chapters 3–10**

Utah Department of Transportation

UDOT Project No. S-R299(281)

Submitted pursuant to

42 USC 4332(2)(c) and 49 USC 303

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.

Contents of Volume 2

Chapter 3: Land Use	3-1
3.1 Introduction	3-1
3.2 Regulatory Setting	3-1
3.3 Affected Environment	3-2
3.3.1 Current Land Use and Land Ownership	3-2
3.3.2 Planning and Zoning	3-5
3.4 Environmental Consequences and Mitigation Measures	3-10
3.4.1 Methodology.....	3-10
3.4.2 No-Action Alternative	3-10
3.4.3 Enhanced Bus Service Alternative.....	3-12
3.4.4 Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	3-24
3.4.5 Gondola Alternative A (Starting at Canyon Entrance).....	3-26
3.4.6 Gondola Alternative B (Starting at La Caille).....	3-32
3.4.7 Cog Rail Alternative	3-34
3.4.8 Summary of Land Use Impacts.....	3-42
3.4.9 Mitigation Measures.....	3-43
3.5 References.....	3-44
Chapter 4: Community and Property Impacts	4-1
4.1 Introduction	4-1
4.2 Regulatory Setting	4-1
4.3 Affected Environment	4-2
4.3.1 Neighborhood and Community Cohesion.....	4-2
4.3.2 Quality of Life	4-6
4.3.3 Recreation Resources	4-8
4.3.4 Community Facilities.....	4-14
4.3.5 Public Safety	4-18
4.3.6 Utilities.....	4-20
4.4 Environmental Consequences and Mitigation Measures	4-21
4.4.1 No-Action Alternative	4-21
4.4.2 Enhanced Bus Service Alternative.....	4-23
4.4.3 Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	4-35
4.4.4 Gondola Alternative A (Starting at Canyon Entrance).....	4-40
4.4.5 Gondola Alternative B (Starting at La Caille).....	4-44
4.4.6 Cog Rail Alternative (Starting at La Caille).....	4-45
4.4.7 Mitigation Measures.....	4-51
4.5 References.....	4-54

Chapter 5: Environmental Justice5-1

5.1	Introduction	5-1
5.2	Regulatory Setting	5-1
5.2.1	Executive Order 12898 on Environmental Justice.....	5-1
5.2.2	Implementation of Executive Order 12898	5-2
5.3	Affected Environment	5-3
5.3.1	Methodology.....	5-3
5.3.2	Public Outreach.....	5-3
5.3.3	Other Outreach	5-4
5.3.4	Environmental Justice Populations.....	5-4
5.4	Environmental Consequences and Mitigation Measures	5-10
5.4.1	Methodology.....	5-10
5.4.2	No-Action Alternative	5-10
5.4.3	Enhanced Bus Service Alternative.....	5-11
5.4.4	Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	5-16
5.4.5	Gondola Alternative A (Starting at Canyon Entrance).....	5-17
5.4.6	Gondola Alternative B (Starting at La Caille).....	5-19
5.4.7	Cog Rail Alternative (Starting at La Caille)	5-20
5.4.8	Mitigation Measures	5-21
5.5	References.....	5-22

Chapter 6: Economics.....6-1

6.1	Introduction	6-1
6.2	Regulatory Setting	6-1
6.3	Affected Environment	6-2
6.3.1	Regional Economic Conditions	6-2
6.3.2	Local Economic Conditions.....	6-3
6.4	Economic Consequences and Mitigation Measures.....	6-9
6.4.1	No-Action Alternative	6-9
6.4.2	Enhanced Bus Service Alternative.....	6-10
6.4.3	Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	6-18
6.4.4	Gondola Alternative A (Starting at Canyon Entrance).....	6-19
6.4.5	Gondola Alternative B (Starting at La Caille).....	6-21
6.4.6	Cog Rail Alternative (Starting at La Caille)	6-23
6.4.7	Mitigation Measures	6-26
6.5	References.....	6-26

Chapter 7: Traffic and Transportation.....7-1

7.1	Introduction	7-1
7.2	Regulatory Setting	7-1
7.2.1	Methodology.....	7-1
7.3	Affected Environment	7-3
7.3.1	Roadway System	7-3
7.3.2	S.R. 210 – Wasatch Boulevard	7-5
7.3.3	S.R. 210 – North Little Cottonwood Road to Alta	7-7
7.3.4	Mobility Hubs.....	7-8
7.3.5	Trailhead Parking	7-8
7.3.6	Winter Parking.....	7-8
7.3.7	Transit Service	7-8
7.4	Environmental Consequences and Mitigation Measures	7-9
7.4.1	No-Action Alternative	7-9
7.4.2	Enhanced Bus Service Alternative.....	7-13
7.4.3	Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	7-20
7.4.4	Gondola Alternative A (Starting at Canyon Entrance)	7-21
7.4.5	Gondola Alternative B (Starting at La Caille)	7-22
7.4.6	Cog Rail Alternative (Starting at La Caille)	7-24
7.4.7	Mitigation Measures	7-26
7.5	References.....	7-26

Chapter 8: Joint Development.....8-1

8.1	Introduction	8-1
8.2	Regulatory Setting	8-1
8.3	Affected Environment	8-1
8.4	Environmental Consequences and Mitigation Measures	8-2
8.4.1	No-Action Alternative	8-2
8.4.2	Enhanced Bus Service Alternative.....	8-2
8.4.3	Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	8-3
8.4.4	Gondola Alternative A (Starting at Canyon Entrance)	8-3
8.4.5	Gondola Alternative B (Starting at La Caille)	8-3
8.4.6	Cog Rail Alternative (Starting at La Caille)	8-3
8.4.7	Mitigation Measures	8-4
8.5	References.....	8-4

Chapter 9: Considerations Related to Pedestrians and Bicyclists9-1

9.1	Introduction	9-1
9.2	Regulatory Setting	9-1
9.3	Affected Environment	9-2
9.3.1	Existing Facilities.....	9-2
9.3.2	Future Facilities	9-6
9.4	Environmental Consequences and Mitigation Measures	9-8
9.4.1	Methodology.....	9-8
9.4.2	No-Action Alternative	9-8
9.4.3	Enhanced Bus Service Alternative.....	9-10
9.4.4	Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	9-14
9.4.5	Gondola Alternative A (Starting at Canyon Entrance).....	9-15
9.4.6	Gondola Alternative B (Starting at La Caille).....	9-16
9.4.7	Cog Rail Alternative (Starting at La Caille)	9-17
9.4.8	Mitigation Measures	9-18
9.5	References.....	9-19

Chapter 10: Air Quality10-1

10.1	Introduction	10-1
10.2	Regulatory Setting	10-1
10.2.1	National Ambient Air Quality Standards (NAAQS)	10-1
10.2.2	Transportation Conformity Requirements	10-3
10.2.3	Hazardous Air Pollutants	10-5
10.3	Affected Environment	10-6
10.3.1	Attainment Status.....	10-6
10.3.2	Existing Air Quality Data	10-6
10.4	Environmental Consequences and Mitigation Measures	10-7
10.4.1	Methodology.....	10-7
10.4.2	No-Action Alternative	10-9
10.4.3	Enhanced Bus Service Alternative.....	10-11
10.4.4	Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	10-16
10.4.5	Gondola Alternative A (Starting at Canyon Entrance).....	10-17
10.4.6	Gondola Alternative B (Starting at La Caille).....	10-19
10.4.7	Cog Rail Alternative (Starting at La Caille)	10-21
10.4.8	Understanding MSAT Emissions	10-23
10.4.9	Comparison of Greenhouse Gas Emissions by Alternative.....	10-25
10.4.10	Mitigation Measures	10-27
10.5	References.....	10-27

Appendices

Appendix 4A. Property Impacts

Appendix 10A. Air Quality Technical Report

Tables

Chapter 3: Land Use

Table 3.3-1. Current Land Use Types in the Land Use Impact Analysis Area.....	3-3
Table 3.4-1. Summary of Acres of Land Required in USDA Forest Service Management Prescriptions and Total Acres of Land Required from Project Component.....	3-43

Chapter 4: Community and Property Impacts

Table 4.3-1. Recreation Resources in the Community Impact Analysis Area.....	4-9
Table 4.3-2. Community Facilities in the Community Impact Analysis Area.....	4-15
Table 4.3-3. Utilities in or adjacent to S.R. 210 from Fort Union Boulevard through the Town of Alta.....	4-20
Table 4.4-1. Total Parking Spaces from S.R. 209/S.R. 210 to Snowbird Entry 1 by Trailhead Alternative.....	4-31
Table 4.4-2. Elimination of Roadside and Pullout Parking with the Trailhead Parking and No Roadside Parking Alternatives and the Enhanced Bus Service in Peak-period Shoulder Lane Alternative.....	4-33

Chapter 5: Environmental Justice

Table 5.3-1. Low-income Population by Block Group.....	5-4
Table 5.3-2. Percentages of Minority Residents by Block Group.....	5-7

Chapter 6: Economics

Table 6.4-1. Change in Skier Capacity with the Enhanced Bus Service Alternative.....	6-13
Table 6.4-2. Change in Visitor Spending with the Enhanced Bus Service Alternative.....	6-14

Chapter 7: Traffic and Transportation

Table 7.3-1. Wasatch Boulevard – Travel Demand Analysis by Direction and Segment in 2018.....	7-5
Table 7.3-2. Wasatch Boulevard – Travel Demand Analysis by Intersection in the AM and PM Peak Hours in 2018.....	7-5
Table 7.4-1. Wasatch Boulevard – Level of Service by Segment for the Existing Conditions (2018) and the No-Action Alternative (2050).....	7-10
Table 7.4-2. Wasatch Boulevard – Level of Service by Intersection for the Existing Conditions (2018) and the No-Action Alternative (2050).....	7-10
Table 7.4-3. S.R. 210 – 30th-highest-hour Travel Times and Vehicle Backup Lengths for the Existing Conditions (2018) and the No-Action Alternative (2050).....	7-11
Table 7.4-4. S.R. 210 – Average Days and Hours of Road Closures with the Existing Conditions (2018) and the No-Action Alternative (2050).....	7-12
Table 7.4-5. Wasatch Boulevard –Level of Service by Segment for the No-Action Alternative and Wasatch Boulevard Action Alternatives (2050).....	7-13
Table 7.4-6. Wasatch Boulevard – Level of Service by Intersection for the No-Action Alternative and Wasatch Boulevard Action Alternatives (2050).....	7-14
Table 7.4-7. S.R. 210 – 30th-highest-hour Travel Times and Vehicle Backup Lengths for the No-Action and Action Alternatives (2050).....	7-15
Table 7.4-8. S.R. 210 – Average Days and Hours of Road Closures with the No-Action Alternative and the Avalanche Mitigation Action Alternatives (2050).....	7-18

Chapter 9: Considerations Related to Pedestrians and Bicyclists

Table 9.3-1. Existing On-street Bicyclist and Pedestrian Facilities 9-3
 Table 9.3-2. Proposed Pedestrian and Bicyclist Improvement Projects 9-6

Chapter 10: Air Quality

Table 10.2-1. National and Utah Ambient Air Quality Standards for Criteria Pollutants and Attainment Status for Salt Lake County 10-2
 Table 10.3-1. Air Quality Monitoring Data from the Hawthorne Monitoring Station in Salt Lake County 10-7
 Table 10.4-1. Wasatch Boulevard – Travel Time and Level of Service by Segment for the Existing Conditions and Project Alternatives 10-9
 Table 10.4-2. S.R. 210 – Travel Times and Vehicle Backup Lengths for the Existing Conditions and Project Alternatives 10-10
 Table 10.4-3. Avalanche Mitigation – Average Days and Hours of Road Closures on S.R. 210 with the Existing Conditions and Project Alternatives 10-11
 Table 10.4-4. Modeled Design Values for PM₁₀ and PM_{2.5} at the Gravel Pit Mobility Hub with the Enhanced Bus Service Alternative in 2050 10-14
 Table 10.4-5. Modeled Design Values for PM₁₀ and PM_{2.5} with Gondola Alternative A in 2050 10-18
 Table 10.4-6. Estimated CO₂ Equivalent (CO_{2e}) Emissions from Winter Operations with the No-Action and Action Alternatives in 2050 10-26

Figures

Chapter 3: Land Use

Figure 3.4-1. Zoning Classifications on Private Land in the Impact Analysis Area for the Enhanced Bus Service Alternatives (1 of 3)	3-13
Figure 3.4-2. Zoning Classifications on Private Land in the Impact Analysis Area for the Enhanced Bus Service Alternatives (2 of 3)	3-14
Figure 3.4-3. Zoning Classifications on Private Land in the Impact Analysis Area for the Enhanced Bus Service Alternatives (3 of 3)	3-15
Figure 3.4-4. USDA Forest Service Management Prescriptions in the Impact Analysis Area for the Enhanced Bus Service Alternatives (1 of 3).....	3-19
Figure 3.4-5. USDA Forest Service Management Prescriptions in the Impact Analysis Area for the Enhanced Bus Service Alternatives (2 of 3).....	3-20
Figure 3.4-6. USDA Forest Service Management Prescriptions in the Impact Analysis Area for the Enhanced Bus Service Alternatives (3 of 3).....	3-21
Figure 3.4-7. Zoning Classifications on Private Land in the Impact Analysis Area for the Gondola Alternatives (1 of 2)	3-28
Figure 3.4-8. Zoning Classifications on Private Land in the Impact Analysis Area for the Gondola Alternatives (2 of 2)	3-29
Figure 3.4-9. USDA Forest Service Management Prescriptions in the Impact Analysis Area for the Gondola Alternatives (1 of 2).....	3-30
Figure 3.4-10. USDA Forest Service Management Prescriptions in the Impact Analysis Area for the Gondola Alternatives (2 of 2).....	3-31
Figure 3.4-11. Zoning Classifications on Private Land in the Impact Analysis Area for the Cog Rail Alternative (1 of 2)	3-36
Figure 3.4-12. Zoning Classifications on Private Land in the Impact Analysis Area for the Cog Rail Alternative (2 of 2)	3-37
Figure 3.4-13. USDA Forest Service Management Prescriptions in the Impact Analysis Area for the Cog Rail Alternative (1 of 2).....	3-38
Figure 3.4-14. USDA Forest Service Management Prescriptions in the Impact Analysis Area for the Cog Rail Alternative (2 of 2).....	3-39

Chapter 4: Community and Property Impacts

Figure 4.3-1. Communities in the Community Impact Analysis Area	4-4
Figure 4.3-2. Recreation Areas in the Community Impact Analysis Area (1 of 2).....	4-11
Figure 4.3-3. Recreation Areas in the Community Impact Analysis Area (2 of 2).....	4-12
Figure 4.3-4. Climbing Recreation Resources adjacent to S.R. 210.....	4-13
Figure 4.3-5. Community Facilities in the Community Impact Analysis Area (1 of 2)	4-16
Figure 4.3-6. Community Facilities in the Community Impact Analysis Area (2 of 2)	4-17
Figure 4.4-1. Mitigation for Elimination of Tanners Roadside Parking	4-52

Chapter 5: Environmental Justice

Figure 5.3-1. Low-income Households by Block Group	5-6
Figure 5.3-2. Minority Populations by Block Group	5-9

Chapter 6: Economics

Figure 6.3-1. Businesses on Wasatch Boulevard in the Economic Impact Analysis Area..... 6-5
 Figure 6.3-2. Businesses in Little Cottonwood Canyon in the Economic Impact Analysis Area..... 6-7
 Figure 6.3-3. Businesses Adjacent to the UTA 9400 South and Highland Drive Park-and-ride Lot in the
 Economic Impact Analysis Area 6-8

Chapter 7: Traffic and Transportation

Figure 7.2-1. Level of Service..... 7-2
 Figure 7.3-1. Transportation Network..... 7-4
 Figure 7.3-2. Wasatch Boulevard and Connecting Roads 7-6
 Figure 7.4-1. Vehicle Backup Lengths by Alternative..... 7-16

Chapter 9: Considerations Related to Pedestrians and Bicyclists

Figure 9.3-1. Existing Pedestrian and Bicyclist Facilities in the Pedestrian and Bicyclist Impact Analysis
 Area 9-5
 Figure 9.3-2. Proposed Pedestrian and Bicyclist Improvements in the Pedestrian and Bicyclist Impact
 Analysis Area..... 9-7
 Figure 9.4-1. Snow Shed Design with Bicycle Path 9-12