APPENDIX D

Public Open House Meeting Materials



LOW Мос Very Source:



Lucha Johnson Sez Slope vools w

grass on top

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engineering better /

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AVALANCHE HAZARD INDEX (AHI): NUMERIC EXPRESSION OF THE POTENTIAL THREAT OF AN AVALANCHE

CURRENT AVALANCHE HAZARD INDEX

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SNOW SHED LOCATION-APPROXIMATE

PARKING CONCEPT BRIDGE TRAILHEAD

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SALT LAKE VALLEY

NEED TO IMPROVE TRAILHEAD PARKING

 Pedestrian conflicts from parked cars on side of the road

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Digner and

- Cars parked on roadway | lder force
 - ases sedime damaged ro es informal n al trailheads
- MassTransit + AHa (
 - atershed

CANYON?

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PEDICATED BUSSES TO

Specific REDATS

mineral soil loss, the spread of weeds and loss of native vegetation

APRIL 2019 (PRELIMINARY CONCEPTS: SUBJECT TO CHANGE)

Don't leave out hiking * snowshee THE CRAITEN MUCH ROLES.

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MINIMIER MICH ANTES W!

PARKING CONCEPT LISA FALLS TRAILHEAD



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ITIAL EVALL AILHEAD P

Trailhead Parking S

 Improve roadway safety by reducing conflicts

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PARKING CONCEPT WHITE PINE TRAILHEAD

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	Measure
	Achieve a level of service D or better on Wasatch Boulevard and intersections in 2050
Plan	Meet the overall objectives identified in the master plan corridor study while addressing safety and mobility requirements
	Meet UDOT's safety standards (such as lane and shoulder widths, access and sight distan roadway users including passenger and freight vehicles, cyclists, pedestrians and recreat





IMPROVING MOBILITY AND SAFETY FOR WASATCH BOULEVARD

EXISTING CONDITIONS (2015) P.M. PEAK-PERIOD



FUTURE NO-ACTION CONDITIONS (2050) *P.M. PEAK-PERIOD*



INITIAL EVALUATION FOR IMPROVING WASATCH BOULEVARD

LEVEL OF SERVICE

A NO DELAYS

Highest quality of service. Free traffic flow with few restrictions on maneuverability or speed.

B NO DELAYS

Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability.

C MINIMAL DELAYS

Stable traffic flow, but less freedom to select speed.

— UDOT Goal -

Traffic flow becoming unstable. Speed subject to sudden change.

E CONSIDERABLE DELAYS

Unstable traffic flow. Speed changes guickly and maneuverability is low.

F CONSIDERABLE

Heavily congested traffic. Demand exceeds capacity and speed varies greatly.

LITTLE COTTONWOOD CANYON EIS FINDING SOLUTIONS FOR TODAY

UDOT recently adjusted the Little Cottonwood Canyon EIS to focus on projects based on greatest benefit.



mitigation

ALTERNATIVES EVALUATION PROCESS

UDOT has developed, with public and agency input, a Purpose and Need Statement for the project that will guide the development of project alternatives. The Purpose and Need explains why a project is necessary, what it should achieve and will serve as the criteria in determining a range of project alternatives. An alternative must meet the Purpose and Need in order to be considered for further study.

IMPROVING MOBILITY AND REDUCING CONGESTION

INITIAL EVALUATION FOR INCREASED ROADWAY CAPACITY

Roadway Capacity Screening Criteria	Measure
Improve overall mobility and reduce congestion in 2050	• Reduce tra
	• Support tra



Wasatch Boulevard Screening Criteria	Measure
Reduce delay and improve capacity (improve regional mobility)	Achieve a level of service D or better on Wasatch Boulevard and intersections in 2050
Consider the Wasatch Boulevard Master Plan Corridor Study	Meet the overall objectives identified in the master plan corridor study while addressing UDOT's safety and mobility requirements
Improve safety	Meet UDOT's safety standards (such as lane and shoulder widths, access and sight distance) for all roadway users including passenger and freight vehicles, cyclists, pedestrians and recreational users

The official scoping period for the Little Cottonwood Canyon EIS runs March 5, 2019 through May 3, 2019. Please submit comments to littlecottonwoodeis@utah.gov or udot.utah.gov/littlecottonwoodeis 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 U.S.C. 327 and a Memorandum of Understanding dated January 17, 2017, and executed by FHWA and UDOT.















Capacity

Develop Proposed Alternatives

Level 1 Screening: Purpose and Need

Refine Alternatives

Level 2 Screening: Environmental and Regulatory Impacts

> Detailed Alternatives Evaluation in the EIS

ravel time over 2050 No-Build congested conditions transit use









IMPROVING CANYON ROADWAY RELIABILITY WITH AVALANCHE MITIGATION

KEY AVALANCHE LOCATIONS



YEARLY LITTLE COTTONWOOD CANYON CLOSURE HOURS DUE TO AVALANCHE MITIGATION



CURRENT AVALANCHE HAZARD INDEX (AHI)

Hazard Category	AHI	
Very Low	Less than 1	
Low	1 to 10	
Moderate	10 to 40	
High	40 to 150	LCC AHI=90 (Mitigated)
Very High	Greater than 150 <	LCC AHI=7,304 (Unmitigated)
Source: Dynamic Aval	anche Consulting 2018	

AVALANCHES POSE A SAFETY RISK TO ROADWAY USERS. LITTLE COTTONWOOD CANYON HAS THE HIGHEST AVALANCHE DANGER IN THE U.S.

INITIAL EVALUATION FOR IMPROVING CANYON ROADWAY RELIABILITY

Avalanche Mitigation Screening Criteria

Improve avalanche related roadway reliability and safety in 2050

• Substantially reduce number of hours and/or days that avalanches delay users • Substantially reduce the avalanche hazard for roadway users

IMPROVING ROADWAY SAFETY AND TRAILHEAD PARKING RELATED CONGESTION



NEED TO IMPROVE TRAILHEAD PARKING

- Pedestrian conflicts from parked cars on side of the road
- Cars parked on roadway shoulder force bicyclists into the travel lanes
- Increases sedimentation into watershed from damaged roadway shoulder
- Creates informal non-designated trailheads
- Informal trailheads contribute to erosion. mineral soil loss, the spread of weeds and loss of native vegetation

WHAT TRAILHEAD OPTIONS WOULD YOU CONSIDER?

Alternative	Eliminate On-Road Parking?	Transit Stops?*	Change Trailhead Parking?
No-Action	No	No	No
Alternative 1	Yes, within ¼ mile radius of trailheads	Yes	No
Alternative 2	Yes, within ¼ mile radius of trailheads	Yes	Yes, trailhead parking will accomodate the on-road parking
Alternative 3	Yes, from canyon entrance to Snowbird Entry 1	Yes	eliminated within a ¼ mile radius of the trailheads
*Transit stops will accomodate future transit			

INITIAL EVALUATION FOR IMPROVING TRAILHEAD PARKING

Trailhead Parking Screening Criteria		
 Improve roadway safety by reducing conflicts Reduce parking-related congestion 	 Improve parking at existing trailheads to support travel modes while improving safety Reduce traffic conflicts at existing trailhead locations Keep parking levels at year 2000 levels 	

WASATCH BOULEVARD IMPROVEMENTS FORT UNION BOULEVARD TO NORTH LITTLE COTTONWOOD ROAD

INITIAL EVALUATION FOR IMPROVING WASATCH BOULEVARD

Wasatch Boulevard Screening Criteria	Measure
Reduce delay and improve capacity (improve regional mobility)	Achieve a level of service D or better on Wasatch Boulevard and intersections in 2050
Consider the Wasatch Boulevard Master Plan Corridor Study	Meet the overall objectives identified in the master plan corridor study while addressing UDOT's safety and mobility requirements
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IMPROVING MOBILITY AND SAFETY FOR WASATCH BOULEVARD

EXISTING CONDITIONS (2015) P.M. PEAK-PERIOD



APRIL 2019 (PRELIMINARY CONCEPTS: SUBJECT TO CHANGE)

FUTURE NO-ACTION CONDITIONS LEVEL OF SERVICE (2050) P.M. PEAK-PERIOD



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Highest quality of service. Free traffic flow with few restrictions on maneuverability or speed.

B NO DELAYS

Stable traffic flow. Speed becoming slightly restricted. Low restriction on maneuverability.

C MINIMAL DELAYS

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UDOT Goal

NOTICEABLE DELAYS Traffic flow becoming unstable. Speed subject to sudden change.

E CONSIDERABLE DELAYS

Unstable traffic flow. Speed changes quickly and maneuverability is low.

CONSIDERABLE DELAYS

Heavily congested traffic Demand exceeds capacity and speed varies greatly.

DESIGN NEED ELEMENTS

- Blind intersection at Kings Hill Drive
- Short merge at High-T
- The standard shoulder width for this segment is 8 feet (The current shoulder width varies from 4 to 10 feet, with 4 feet being the typical width)
- The length of the deceleration lane for the center left turn at Golden Hills Avenue is substandard
- Unprotected hazards within the clear zone including substandard barrier end treatments, trees and steep slopes
- No pedestrian sidewalks or trail







WASATCH BLVD: 5-LANE





5-LANE ARTERIAL W/SHARED USE PATH CONCRETE MEDIAN AND GRASS PARK STRIP



5-LANE ARTERIAL W/SHARED USE PATH STRIPED MEDIAN AND CONCRETE PARK STRIP







5-LANE ARTERIAL W/SHARED USE PATH CONCRETE MEDIAN AND GRASS PARK STRIP INTERSECTIONS









LITTLE COTTONWOOD CANYON SNOWSHED LOCATIONS WHITE PINE CHUTES, WHITE PINE AND LITTLE PINE





APRIL 2019 (PRELIMINARY CONCEPTS: SUBJECT TO CHANGE)

INITIAL EVALUATION FOR IMPROVING CANYON ROADWAY RELIABILITY

Avalanche Mitigation Screening Criteria

Improve avalanche related roadway reliability and safety in 2050









• Substantially reduce number of hours and/or days that avalanches delay users • Substantially reduce the avalanche hazard for roadway users





Hazard Ca Very Low Low Moderate High Very High





AVALANCHE HAZARD INDEX (AHI): NUMERIC EXPRESSION OF THE POTENTIAL THREAT OF AN AVALANCHE

CURRENT AVALANCHE HAZARD INDEX

ategory	AHI
/	Less than 1
	1 to 10
е	10 to 40
	40 to 150
h	Greater than 150 - LCC AHI=7,304 (Unmitigated)
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Source: Dynamic Avalanche Consulting 2018

SNOW SHED LOCATION-APPROXIMATE

PARKING CONCEPT BRIDGE TRAILHEAD



NEED TO IMPROVE TRAILHEAD PARKING

- Pedestrian conflicts from parked cars on side of the road
- Cars parked on roadway shoulder force bicyclists into the travel lanes
- Increases sedimentation into watershed from damaged roadway shoulder
- Creates informal non-designated trailheads
- Informal trailheads contribute to erosion, mineral soil loss, the spread of weeds and loss of native vegetation

APRIL 2019 (PRELIMINARY CONCEPTS: SUBJECT TO CHANGE)

PARKING CONCEPT LISA FALLS TRAILHEAD



INITIAL EVALUATION FOR IMPROVING TRAILHEAD PARKING

Trailhead Parking Screening Criteria

- Improve roadway safety by reducing conflicts
- Reduce parkingrelated congestion
- Improve parking at existing trailheads to support travel modes while improving safety
- Reduce traffic conflicts at existing trailhead locations
- Keep parking levels at year 2000 levels

PARKING CONCEPT WHITE PINE TRAILHEAD

Alternative	Eliminate On-Road Parking?	Transit Stops?*	Changed Trailhead Parking?
No-Action	No	No	No
Alternative 1	Yes, within ¼ mile radius of trailheads	Yes	No
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Alternative 3	Yes, from canyon entrance to Snowbird Entry 1	Yes	eliminated within a ¼ mile radius of the trailheads

*Iransit stops will accomodate future transit

Little Cottonwood Canyon Mental IMPACT STATEMENT Wasatch Boulevard to Alta

ROADWAY CAPACITY IMPROVING MOBILITY AND REDUCING CONGESTION





Roadway capacity improvements could include an additional lane

INITIAL EVALUATION FOR INCREASED ROADWAY CAPACITY

Improve overall mobility and reduce congestion in 2050

TANNERS FLAT CAMPGROUND

Little Cottonwood Canyon Mental IMPACT STATEMENT Wasatch Boulevard to Alta

Trailhead Parking Screening Criteria Measures Reduce travel time over 2050 No-Build congested conditions Support transit use



TRANSPORTATION **CONSIDERATIONS**

- Transit
- Travel Delay and Congestion
- Tolling
- Bicycle and Pedestrian Access
- Recreation Access
- Business and Residential Access
- Utility Relocations
- Local Land Use and Zoning Plans
- Regional Growth
- Safety

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- Parks and Recreation Areas
 - Cumulative Impacts
- Minority and Low-Income Populations
- Threatened and Endangered Species
 - leusiV •
 - Wetlands
 - Wildlife community character)
 - heighborhood unity and Social (e.g. emergency services,
 - Potential Construction Impacts

CONSIDERATIONS ΕΝΛΙΒΟΝΜΕΝΤΑ

- Water Quality
- Air Quality
- Property Impacts
- Economic Impacts
- Hazardous Waste Sites
- Historic Properties
- Land Use
- Noise

LITTLE COTTONWOOD CANYON ENVIRONMENTAL IMPACT STATEMENT



 \odot

PUBLIC OPEN HOUSE



Little Cottonwood Canyon Mental Wasatch Boulevard to Alta





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WELCOME

COTTONWOOD CANYONS TRANSPORTATION ACTION PLAN

PUBLIC OPEN HOUSE



Cottonwood Canyons TRANSPORTATION ACTION PLAN







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Cottonwood Canyons **TRANSPORTATION ACTION PLAN**



WELCOME

Little Cottonwood Canyon Mental IMPACT STATEMENT Wasatch Boulevard to Alta













Little Cottonwood Canyon // MPACT STATEMENT Wasatch Boulevard to Alta



Challenges & Issues





Roadway Capacity

Trailhead Parking



•

Wasatch Boulevard



Avalanche mitigation

Improving Mobility and Reducing Congestion



Improving Mobility and Reducing Congestion Screening Criteria



Improve overall mobility and reduce congestion in 2050



Improving Mobility and Reducing Congestion Measures







ROADWAY CAPACITY IMPROVEMENTS COULD INCLUDE AN ADDITIONAL LANE















Trailhead Parking Screening Criteria

Improve roadway safety by reducing conflicts Reduce parking-related congestion



Trailhead Parking Measures



Improve parking at existing trailheads to support travel modes while improving safety Reduce traffic conflicts at existing trailhead locations Keep parking levels at year 2000 levels



PARKING CONCEPT



15









Wasatch Boulevard Potential Solutions



Wasatch Boulevard Screening Criteria

Reduce delay and improve capacity (improve regional mobility)
 Consider the Wasatch Boulevard Master Plan Corridor Study
 Improve safety



Weasures Measures

Achieve a level of service D or better on Wasatch Boulevard and intersections in 2050 Meet the overall objectives identified in the master plan corridor study while addressing UDOT's safety and mobility requirements Meet UDOT's safety standards for all roadway users including passenger and freight vehicles, cyclists, pedestrians and recreational users



Future No-action Conditions (2050) P.M. Peak-Period

45% Projected Traffic growth

Z

Big Cottonwood Rd.

ort Union Blu

210

Bengal Blv

Wasate

k Rd.







3500 EAST

BENGAL BLVD.



KINGS HILL DRIVE

WASATCH BLVD.



FUTURE PEDESTRIAN BRIDGES (Estimated footprint) Location may vary. Funding to be identified through Cottonwood Heights City.




POTENTIAL EXPANSION OF WASATCH BLVD. TO 5 LANES



Avalanche Mitigation



Avalanche Mitigation Screening Criteria Improve avalanche-related roadway reliability and safety in 2050



Avalanche Mitigation Measures

Substantially reduce number of hours and/or days that avalanches delay users
Substantially reduce the avalanche hazard for roadway users



Avalanche Mitigation Potential Snow Shed









Canyon Closures Due to Avalanche Mitigation



Closure Time – – – Average (56.3 hours per year)



Avalanche Hazard Index Current

Hazard CategoryAHIVery LowLess than 1Low1 to 10Moderate10 to 40High40 to 150Very HighGreater than 150Source: Dynamic Avalanche Consulting 2018





WHITE PINE TRAILHEAD





WHITE PI

NE

WHITE PINE CHUTES

SNOW SHED LOCATION-APPROXIMATE

LITTLE PINE

WHITE PINE TRAILHEAD



Timeline

Notice of Intent Winter/Spring 2019



3

Public Scoping Open House (Current stage) Winter/Spring 2019

Alternatives Development/Refinement Summer 2019 to Fall 2019

Draft Environmental Impact Statement (EIS) Winter/Spring 2020

Final EIS\Record 5 of Decision Winter/Spring 2021



Get Involved

The revised EIS scoping period is open from: March 5 to May 3, 2019





Get Involved Submit Official Comments

udot.utah.gov/LittleCottonwoodEIS **X** LittleCottonwoodElS@utah.gov





Join the Conversation

@UDOTIcceis UDOT Little Cottonwood Canyon Environmental Impact Statement (LCC EIS)



Dartners













Little Cottonwood Canyon // MPACT STATEMENT Wasatch Boulevard to Alta

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