Appendix G
Preliminary Opinion of Probable Cost

Summary Of Quantities **US 50 Arterial Concept Estimate**

IPD Bid Item #	Description	Quantity		Cost per Unit	Unit Total
202 0990	REMOVAL OF BITUMINOUS SURFACE (COLD MILLING)	378465	SQYD	$ 2.00	756,929.3
203 0140	ROADWAY EXCAVATION	105871	CUYD	$ 22.50	2,382,096.7
203 0200	BORROW EMBANKMENT	211742	CUYD	$ 25.00	5,293,548.1
302 0190	TYPE 2 CLASS B AGGREGATE BASE	133768	TON	$ 35.00	4,681,878.7
402 0782	PLANTMIX SURFACING (TYPE 2C)(WET)	69156	TON	$ 95.00	6,569,864.2
403 0110	PLANTMIX BITUMINOUS OPEN-GRADED SURFACE AGGREGATE (3/8-INCH)	20416	TON	$ 105.00	2,143,711.7
406 0120	PRIME COAT	158806	SQYD	$ 2.00	317,612.9
502 0730	CLASS AA CONCRETE (ISLAND PAVING)	398	CUYD	$ 220.00	87,630.6
613 0390	CLASS AA CONCRETE GLUE DOWN CURB (TYPE B)	13614	LINFT	$ 25.00	340,350.0
613 0830	CLASS AA CONCRETE CURB AND GUTTER (TYPE 5)	0	LINFT	$ 30.00	0.0
623 0000	SIGNAL SYSTEM	9	EACH	$ 500,000.00	4,500,000.0

10 Year Rehabilitation (2" mill and fill)(Proposed Rural Aterial)

Area	Cost		Total	
537,271	$16.50	SQYD	$8,864,973	Total 10 yr Maintenance cost

Annual Maintenance cost

Landscaping	$6,000	Yearly LS
Surfacing	886,497	Pro rated over 10yr
Lighting	$8,000	($100 each per yr)(80 total lights)
Signal O&M	$25,000	(10 Proposed signal)
	$925,497	**Annual Maintenance Costs**

Annual maintenance costs for existing conditions

Area	Cost		Total	
378,465	$16.50	SQYD	$6,244,667	Total 10 yr Maintenance cost

Annual Maintenance cost

Landscaping	NA	Yearly LS
Surfacing	$624,467	Pro rated over 10yr
Lighting	$2,600	($100 each per yr)(26 existing lights)
Signal O&M	$2,500	(1 Existing signal)
	$629,567	**Annual Maintenance Costs**

Sub-Total:	$27,073,622
Drainage (25%):	$6,768,406
Landscaping (3%)	$812,209
Lighting (3%)	$812,209
Signing and Striping (5%)	$1,353,681
Traffic Control (15%):	$4,061,043
Miscellaneous Item Allowance (15%):	$4,061,043
Bid Item Sub-Total	$44,942,213
Mobilization (7%):	$3,145,955
Contract Total:	$48,088,168
Construction Engineering (7%):	$3,366,172
Preliminary Engineering (10%):	$4,808,817
Construction Contingency (3%):	$1,442,645
Right-of-Way Acquisition:	$0
Utility Relocation:	$1,000,000
Total:	**$58,705,801**

Summary Of Quantities **US 50 Parkway Concept Estimate**

IPD Bid Item #	Description	Quantity		Cost per Unit	Unit Total
202 0990	REMOVAL OF BITUMINOUS SURFACE (COLD MILLING)	378849	SQYD	$ 2.00	757,698.9
203 0140	ROADWAY EXCAVATION	83785	CUYD	$ 22.50	1,885,173.3
203 0200	BORROW EMBANKMENT	167571	CUYD	$ 25.00	4,189,274.1
302 0190	TYPE 2 CLASS B AGGREGATE BASE	105863	TON	$ 35.00	3,705,203.5
402 0782	PLANTMIX SURFACING (TYPE 2C)(WET)	55417	TON	$ 95.00	5,264,658.9
403 0110	PLANTMIX BITUMINOUS OPEN-GRADED SURFACE AGGREGATE (3/8-INCH)	19172	TON	$ 105.00	2,013,065.4
406 0120	PRIME COAT	125678	SQYD	$ 2.00	251,356.4
502 0730	CLASS AA CONCRETE (ISLAND PAVING)	417	CUYD	$ 220.00	91,763.1
613 0390	CLASS AA CONCRETE GLUE DOWN CURB (TYPE B)	17252	LINFT	$ 25.00	431,300.0
613 0830	CLASS AA CONCRETE CURB AND GUTTER (TYPE 5)		LINFT	$ 30.00	0.0
623 0000	SIGNAL SYSTEM	5	EACH	$ 500,000.00	2,500,000.0

10 Year Rehabilitation (2" mill and fill)(Proposed Rural Aterial)

Area	Cost		Total	
504,528	$16.50	SQYD	$8,324,707	Total 10 yr Maintenance cost

Annual Maintenance cost

Landscaping	$6,000	Yearly LS
Surfacing	832,471	Pro rated over 10yr
Lighting	$8,000	($100 each per yr)(80 total lights)
Signal O&M	$15,000	(6 Proposed signal)
	$861,471	**Annual Maintenance Costs**

Annual maintenance costs for existing conditions

Area	Cost		Total	
378,849	$16.50	SQYD	$6,251,016	Total 10 yr Maintenance cost

Annual Maintenance cost

Landscaping	NA	Yearly LS
Surfacing	$625,102	Pro rated over 10yr
Lighting	$2,600	($100 each per yr)(26 existing lights)
Signal O&M	$2,500	(1 Existing signal)
	$630,202	**Annual Maintenance Costs**

Sub-Total:	$21,089,494
Drainage (25%):	$5,272,373
Landscaping (3%)	$632,685
Lighting (3%)	$632,685
Signing and Striping (5%)	$1,054,475
Traffic Control (15%):	$3,163,424
Miscellaneous Item Allowance (15%):	$3,163,424
Bid Item Sub-Total	$35,008,559
Mobilization (7%):	$2,450,599
Contract Total:	$37,459,159
Construction Engineering (7%):	$2,622,141
Preliminary Engineering (10%):	$3,745,916
Construction Contingency (3%):	$1,123,775
Right-of-Way Acquisition:	$0
Utility Relocation:	$1,000,000
Total:	**$45,950,990**

Summary Of Quantities **US 50 Controlled Access Concept Estimate**

IPD Bid Item #	Description	Quantity		Cost per Unit	Unit Total
202 0990	REMOVAL OF BITUMINOUS SURFACE (COLD MILLING)	359840	SQYD	$ 2.00	719,680.0
203 0140	ROADWAY EXCAVATION	124136	CUYD	$ 22.50	2,793,056.7
203 0200	BORROW EMBANKMENT	385322	CUYD	$ 25.00	9,633,040.7
302 0190	TYPE 2 CLASS B AGGREGATE BASE	161488	TON	$ 35.00	5,652,074.4
402 0782	PLANTMIX SURFACING (TYPE 2C)(WET)	81351	TON	$ 95.00	7,728,346.7
403 0110	PLANTMIX BITUMINOUS OPEN-GRADED SURFACE AGGREGATE (3/8-INCH)	27025	TON	$ 105.00	2,837,589.9
406 0120	PRIME COAT	191715	SQYD	$ 2.00	383,429.8
502 0170	CONCRETE BARRIER RAIL (TYPE FA)	10,000	LINFT	$ 65.00	650,000
502 0730	CLASS AA CONCRETE (ISLAND PAVING)	230	CUYD	$ 220.00	50,681.5
613 0390	CLASS AA CONCRETE GLUE DOWN CURB (TYPE B)	8095	LINFT	$ 25.00	202,375.0
613 0830	CLASS AA CONCRETE CURB AND GUTTER (TYPE 5)	34100	LINFT	$ 30.00	1,023,000.0
623 0000	SIGNAL SYSTEM	1	EACH	$ 500,000.00	500,000.0
	BRIDGE STRUCTURES	39,480	SQFT	$ 175.00	6,909,000.0

10 Year Rehabilitation (2" mill and fill)(Proposed Controlled Access)

Area	Cost		Total	
533,382	$16.50	SQYD	$8,800,796	Total 10 yr Maintenance cost

Annual Maintenance cost

Bridge Structures	$21,000	Yearly LS (3 Structures $7,000 each)
Landscaping	6,000	Yearly LS
Surfacing	880,080	Pro rated over 10yr
Lighting	6,800	($100 each per yr)(68 total lights)
Signal O&M	$2,500	(1 Proposed signal)
	$916,380	**Annual Maintenance Costs**

Annual maintenance costs for existing conditions

Area	Cost		Total	
359,840	$16.50	SQYD	$5,937,360	Total 10 yr Maintenance cost

Annual Maintenance cost

Landscaping	NA	Yearly LS
Surfacing	$593,736	Pro rated over 10yr
Lighting	$2,600	($100 each per yr)(26 existing lights)
Signal O&M	$2,500	(1 Existing signal)
	$598,836	**Annual Maintenance Costs**

Sub-Total:	$39,082,275
Drainage (25%):	$9,770,569
Landscaping (3%)	$1,172,468
Lighting (3%)	$1,172,468
Signing and Striping (5%)	$1,954,114
Traffic Control (7%):	$2,735,759
Miscellaneous Item Allowance (15%):	$5,862,341
Bid Item Sub-Total	$61,749,994
Mobilization (7%):	$4,322,500
Contract Total:	$66,072,494
Construction Engineering (7%):	$4,625,075
Preliminary Engineering (10%):	$6,607,249
Construction Contingency (3%):	$1,982,175
Right-of-Way Acquisition:	$9,131,000
Utility Relocation:	$200,000
Total:	**$88,617,992**

Appendix H
Safety BC Analysis

COST EFFECTIVENESS ANALYSIS
ACCIDENT REDUCTION BENEFITS

(2019 DOLLAR FIGURES) 02/08/21

ENGINEERING AUTHORIZATION NO.		
PROJECT NO.		
COUNTERMEASURE	US 50 Arterial	
PROJECT LOCATION	US Hwy 50 Pine Cone Road to MP 15	
AADT - Segment or Main St & Cross St	SEGMENT	-----
ROADWAY CHARACTERISTICS	6 LANE UNDIVIDED W/TWL	-----
DEMOGRAPHIC DESIGNATION	URBAN	----------
FUNCTIONAL CLASSIFICATION	3 OTHER PRINCIPAL ARTER	-----
IMPLEMENTATION COSTS	$58,705,801.00	
ANNUAL MAINTENENCE COSTS	$925,497.00	
CURRENT PRIME INTEREST RATE	3.25%	
PERCENTAGE OF GROWTH	2.00%	
ESTIMATED SERVICE LIFE	20 YEAR(S)	
LENGTH OF STUDY	-- YEAR(S)	

CALCULATION OF REDUCTIONS

IHSDM (Interactive Highway Safety Design Model)

http://www.ihsdm.org/

	2019 CRASH SOCIETAL COSTS	EXISTING CONDITION PREDICTED CRASHES (A)	ALTERNATIVE PREDICTED CRASHES (B)	CRASHES SAVED ANNUALLY (C)
FATAL	$6,200,000.00	21.32	20.44	0.04
INJURY A	$330,600.00	94.60	90.69	0.20
INJURY B	$120,700.00	361.06	346.13	0.75
INJURY C	$67,900.00	784.10	751.68	1.62
PDO	$11,000.00	1429.20	1370.11	2.95

CALCULATION OF BENEFITS

	CRASHES SAVED ANNUALLY (D)	SOCIETAL COST (E)	SOCIETAL BENEFIT (F)
FATAL	0.04	$6,200,000	$272,800
INJURY A	0.20	$330,600	$64,632
INJURY B	0.75	$120,700	$90,103
INJURY C	1.62	$67,900	$110,066
PDO	2.95	$11,000	$32,500

TOTAL ANNUAL BENEFITS (Summation of Column E)	$570,100
TOTAL ANNUAL BENEFITS (Including Growth)	$581,502
CAPITAL RECOVERY FACTOR	0.0688
ANNUALIZED IMPLEMENTATION COSTS	$4,037,719
TOTAL ANNUALIZED COSTS	$4,963,216
AVERAGE ANNUAL NET RETURN	($4,381,714)
BENEFIT/COST	**0.12**

COST EFFECTIVENESS ANALYSIS
ACCIDENT REDUCTION BENEFITS

(20190 DOLLAR FIGURES) 02/08/21

ENGINEERING AUTHORIZATION NO.	
PROJECT NO.	
COUNTERMEASURE	US 50 Parkway
PROJECT LOCATION	US Hwy 50 Pine Cone Road to MP 15
AADT - Segment or Main St & Cross St	SEGMENT
ROADWAY CHARACTERISTICS	6 LANE UNDIVIDED W/TWL
DEMOGRAPHIC DESIGNATION	URBAN
FUNCTIONAL CLASSIFICATION	3 OTHER PRINCIPAL ARTER
IMPLEMENTATION COSTS	$45,950,990.00
ANNUAL MAINTENENCE COSTS	$861,471.00
CURRENT PRIME INTEREST RATE	3.25%
PERCENTAGE OF GROWTH	2.00%
ESTIMATED SERVICE LIFE	20 YEAR(S)
LENGTH OF STUDY	-- YEAR(S)

CALCULATION OF REDUCTIONS

IHSDM (Interactive Highway Safety Design Model)
http://www.ihsdm.org/

	2019 CRASH SOCIETAL COSTS	EXISTING CONDITION PREDICTED CRASHES (A)	ALTERNATIVE PREDICTED CRASHES (B)	CRASHES SAVED ANNUALLY (C)
FATAL	$6,200,000.00	21.32	19.95	0.07
INJURY A	$330,600.00	94.60	90.66	0.20
INJURY B	$120,700.00	361.06	347.98	0.65
INJURY C	$67,900.00	784.10	724.21	2.99
PDO	$11,000.00	1429.20	1383.69	2.28

CALCULATION OF BENEFITS

	CRASHES SAVED ANNUALLY (D)	SOCIETAL COST (E)	SOCIETAL BENEFIT (F)
FATAL	0.07	$6,200,000	$424,700
INJURY A	0.20	$330,600	$65,128
INJURY B	0.65	$120,700	$78,938
INJURY C	2.99	$67,900	$203,327
PDO	2.28	$11,000	$25,031

TOTAL ANNUAL BENEFITS (Summation of Column E)	$797,123
TOTAL ANNUAL BENEFITS (Including Growth)	$813,066
CAPITAL RECOVERY FACTOR	0.0688
ANNUALIZED IMPLEMENTATION COSTS	$3,160,458
TOTAL ANNUALIZED COSTS	$4,021,929
AVERAGE ANNUAL NET RETURN	($3,208,863)
BENEFIT/COST	**0.20**

COST EFFECTIVENESS ANALYSIS
ACCIDENT REDUCTION BENEFITS

(2019 DOLLAR FIGURES) 02/08/21

ENGINEERING AUTHORIZATION NO.	
PROJECT NO.	
COUNTERMEASURE	US 50 Controlled Access
PROJECT LOCATION	US Hwy 50 Pine Cone Road to MP 15
AADT - Segment or Main St & Cross St	SEGMENT / -----
ROADWAY CHARACTERISTICS	4 LANE DIVIDED / -----
DEMOGRAPHIC DESIGNATION	URBAN / ----------
FUNCTIONAL CLASSIFICATION	3 OTHER PRINCIPAL ARTER / -----
IMPLEMENTATION COSTS	$88,617,992.00
ANNUAL MAINTENENCE COSTS	$916,380.00
CURRENT PRIME INTEREST RATE	3.25%
PERCENTAGE OF GROWTH	2.00%
ESTIMATED SERVICE LIFE	20 YEAR(S)
LENGTH OF STUDY	-- YEAR(S)

CALCULATION OF REDUCTIONS

IHSDM (Interactive Highway Safety Design Model)

http://www.ihsdm.org/

	2019 CRASH SOCIETAL COSTS	EXISTING CONDITION PREDICTED CRASHES (A)	ALTERNATIVE PREDICTED CRASHES (B)	CRASHES SAVED ANNUALLY (C)
FATAL	$6,200,000.00	21.32	14.40	0.35
INJURY A	$330,600.00	94.60	54.63	2.00
INJURY B	$120,700.00	361.06	270.06	4.55
INJURY C	$67,900.00	784.10	592.45	9.58
PDO	$11,000.00	1429.20	1171.90	12.87

CALCULATION OF BENEFITS

	CRASHES SAVED ANNUALLY (D)	SOCIETAL COST (E)	SOCIETAL BENEFIT (F)
FATAL	0.35	$6,200,000	$2,145,200
INJURY A	2.00	$330,600	$660,704
INJURY B	4.55	$120,700	$549,185
INJURY C	9.58	$67,900	$650,652
PDO	12.87	$11,000	$141,515

TOTAL ANNUAL BENEFITS (Summation of Column E)	$4,147,256
TOTAL ANNUAL BENEFITS (Including Growth)	$4,230,201
CAPITAL RECOVERY FACTOR	0.0688
ANNUALIZED IMPLEMENTATION COSTS	$6,095,047
TOTAL ANNUALIZED COSTS	$7,011,427
AVERAGE ANNUAL NET RETURN	($2,781,226)
BENEFIT/COST	**0.60**

Appendix I
List of Assumptions

List of Assumptions

Alternatives Data

- Identification of NDOT Alternatives. Per discussions with NDOT Traffic Operations, the following are the three alternatives for consideration:
  - Alternative #1: Urban Arterial
  - Alternative #2: Parkway
  - Alternative #3: Controlled Access (Freeway)
- Existing and Design Years. Per NDOT Traffic Operations:
  - Existing Year: 2020
  - Design Year: 2040

Traffic Data

- Existing year 2020 Peak-Hour turning movement counts
- Design year 2040 Peak-Hour Traffic volumes
- Heavy vehicle percentage
  - US 50, Pinecone Rd to Six-Mile Canyon Road, 2.0%
  - US 50, Six-Mile Canyon Road to Bryce/Chaves Rd, 4.0%

Safety Data

- Crash Data. Provided by NDOT Traffic / Safety, and are included in Appendix B Crash Data & Crash Charts
  - 5 years (07/01/2013-07/01/2018)
- IHSDM Assumption.
  - Annual ADT (AADT) for major and minor approaches were averaged
  - 5 years Study Period
  - Controlled Access Data are included in Appendix D IHSDM Controlled Access Data
  - Analysis are included in Appendix F IHSDM Safety Analysis
  - Combined Results are included in Appendix E IHSDM Combined Results

Cal-BC Corridor v7.2 Data

- Traffic Data from other sources:
  - Truck Percentage (4%)
  - 1.45 vehicle occupancy - NDOT Performance Management Report (page 147-153) https://www.nevadadot.com/Home/ShowDocument?id=18252
- Cost Parameters
  - Cost/Person-Hour Delay (2019$):
    - State Average hourly rate - $22.60
    - Business travel: $34.79

- Personal travel: $11.60
- Fuel costs
  - Automobile - $2.60
  - Truck - $2.62
  - Reference: AAA Daily Fuel Gauge Report
- Vehicle non-fuel operating cost
  - Light Duty Vehicle - $0.31
  - Commercial Truck - $0.59
- Reference: NDOT Performance Management Report (page 147-153) https://www.nevadadot.com/Home/ShowDocument?id=18252.

- Emission Components cost

Emission Type	$ / short ton*
Carbon Dioxide (CO_2)	$ 0.93**
Fine Particular Matter (PM)	$ 394,300
Nitrogen Oxides (NO_x)	$ 8,800
Sulphur Dioxide (SO_2)	$ 51,000
Volatile Organic Compounds (VOC)	$ 2,140

1. Source: Benefit-Costs Analysis Guidance for Discretionary Grant Programs, USDOT, January 2020.
2. * A metric ton is equal to 1.1015 short tons.
3. ** Cost of CO_2 is assumed to grow by 2.1 percent annually.

Reference: NDOT Performance Management Report (page 147-153)

- Model Groups:
  - AM Peak-Hour
  - PM Peak-Hour
  - Rest of the day
  - Mainline and Ramp segments (Alternative 3: Controlled Access)
- Project Timing Data:
  - Current year (2020)
  - Construction year (2020)
  - Project opening year (2021)
  - Number of analysis years
    - 2040 is considered as Design/horizon year for the project.
- Discount rate of 7%

Other Data

- As-builts and Right-of-Way provided by NDOT.
- Aerial photography provided by NDOT.
- Operations and Maintenance Costs. Per e-mail correspondence from NDOT Traffic Operations.

Operation and Maintenance Costs

- Pavement Surfacing Cost

Additional area beyond existing edge of pavement (10 year life cycle) Resurfacing Cost per SY = $16.50

- Alternative #1: Urban Arterial = 537,271 SY x $16.50 = $ 8,864,973
- Alternative #2: Parkway = 504,528 SY x $16.50 = $ 8,324,707
- Alternative #3: Controlled Access = 533,382 SY x $16.50 = $ 8,800,796

- Urban Arterial Maintenance Cost:
  - Landscaping = $6,000 Per Year
  - Lighting: 80 lights X $100 = $8,000 Per Year
  - Surfacing: $886,497 Prorated over 10yrs
  - Signal: 10 Proposed Signals x $2,500 = $25,000 Per Year
  - Total: $925,497 Per Year
- Parkway Maintenance Cost:
  - Landscaping = $6,000 Per Year
  - Lighting: 80 lights X $100 = $8,000 Per Year
  - Surfacing: $832,471 Prorated over 10yrs
  - Signal: 6 Proposed Signals x $2,500 = $15,000 Per Year
  - Total: $861,471 Per Year
- Controlled Access Annual Maintenance Cost:
  - Bridge: 3 Proposed Structures x $7,000 = $21,000 per year
  - Landscaping: = $6,000 Per Year
  - Lighting: 68 lights X $100 = $6,800 Per Year
  - Surfacing: $880,080 Prorated over 10yrs
  - Signal: 1 Proposed Signals x $2,500 = $2,500 Per Year
  - Total: $916,380 Per Year

- Refer to Appendix G for preliminary opinion of probable costs

Appendix J
Benefit-Cost Analysis

INVESTMENT ANALYSIS

SUMMARY RESULTS (US50 - Alternative 1: Arterial)

Life-Cycle Costs (mil. $)	$68.5
Life-Cycle Benefits (mil. $)	$1,389.7
Net Present Value (mil. $)	$1,321.2
Benefit / Cost Ratio:	20.29
Rate of Return on Investment:	73.5%
Payback Period:	2 years

ITEMIZED BENEFITS (mil. $)	Total Over 20 Years	Average Annual
Travel Time Savings	$1,311.2	$65.6
Veh. Op. Cost Savings	$74.2	$3.7
Accident Cost Savings	$1.8	$0.1
Emission Cost Savings	$2.6	$0.1
Residual value	$0.0	$0.0
TOTAL BENEFITS	$1,389.7	$69.5
Person-Hours of Time Saved	246,145,329	12,307,266
Fatalities Avoided	0	0
Injuries Avoided	2	0
PDO Avoided	27	1

Should benefit-cost results include:

1) Induced Travel? (y/n)	N	Default = Y
2) Vehicle Operating Costs? (y/n)	Y	Default = Y
3) Accident Costs? (y/n)	Y	Default = Y
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y	Default = Y

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	681	34	$0.0	$0.0
CO_2 Emissions Saved	353,919	17,696	$0.2	$0.0
NO_X Emissions Saved	267	13	$1.1	$0.1
PM_{10} Emissions Saved	5	0	$1.1	$0.1
$PM_{2.5}$ Emissions Saved	5	0		
SO_X Emissions Saved	3	0	$0.1	$0.0
VOC Emissions Saved	94	5	$0.1	$0.0

BENEFIT COST ANALYSIS FOR US50 - ALTERNATIVE 1 (ARTERIAL)

BENEFITS AND COST BY YEAR, 2019$

Year	Travel Time Savings	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Design and Construction Costs	Op. and Maintenance Costs	Residual Value
2020	N/A	N/A	N/A	N/A	$58,706,000	N/A	N/A
2021	$20,431,827	$1,555,695	($96,044)	$52,049	$0	$864,950	$0
2022	$31,260,646	$2,754,166	($56,764)	$119,473	$0	$808,365	$0
2023	$40,585,165	$3,368,038	($22,212)	$160,790	$0	$755,481	$0
2024	$48,555,862	$3,948,148	$8,061	$201,729	$0	$706,057	$0
2025	$55,309,966	$4,252,902	$34,469	$224,077	$0	$659,867	$0
2026	$60,972,544	$4,232,482	$57,387	$223,265	$0	$616,698	$0
2027	$65,657,506	$4,505,147	$77,158	$243,579	$0	$576,353	$0
2028	$69,468,528	$4,452,157	$94,098	$119,250	$0	$538,648	$0
2029	$72,499,908	$4,379,205	$108,490	$117,466	$0	$503,409	$0
2030	$74,837,344	$4,288,530	$120,597	$115,219	$0	$470,476	$0
2031	$76,558,658	$4,189,609	$130,655	$112,764	$0	$439,697	$0
2032	$77,734,461	$4,078,017	$138,882	$110,111	$0	$410,932	$0
2033	$78,428,761	$3,945,543	$145,472	$106,316	$0	$384,048	$0
2034	$78,699,526	$3,826,849	$150,606	$103,409	$0	$358,924	$0
2035	$78,599,201	$3,705,251	$154,446	$100,464	$0	$335,443	$0
2036	$78,175,180	$3,596,088	$157,139	$97,724	$0	$313,498	$0
2037	$77,470,246	$3,460,879	$158,818	$94,614	$0	$292,989	$0
2038	$76,522,968	$3,325,966	$159,605	$91,339	$0	$273,821	$0
2039	$75,368,072	$3,217,766	$159,609	$88,552	$0	$255,908	$0
2040	$74,036,778	$3,087,997	$158,930	$84,782	$0	$239,166	$0
Total	**$1,311,173,149**	**$74,170,434**	**$1,839,402**	**$2,566,974**	**$0**	**$68,510,728**	**$0**
					TOTAL BENEFITS	**$1,389,749,959**	

BENEFITS AND COSTS IN CONSTANT DOLLARS

Discount Rate = 7%

Year	Travel Time Savings	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Design and Construction Costs	Op. and Maintenance Costs	Residual Value
2020	N/A	N/A	N/A	N/A	$58,706,000	N/A	N/A
2021	$21,862,055	$1,664,594	($102,767)	$55,693	$0	$925,497	$0
2022	$35,790,313	$3,153,244	($64,989)	$136,785	$0	$925,497	$0
2023	$49,718,572	$4,125,992	($27,211)	$196,975	$0	$925,497	$0
2024	$63,646,831	$5,175,216	$10,566	$264,426	$0	$925,497	$0
2025	$77,575,089	$5,964,915	$48,344	$314,280	$0	$925,497	$0
2026	$91,503,348	$6,351,814	$86,122	$335,060	$0	$925,497	$0
2027	$105,431,606	$7,234,282	$123,900	$391,134	$0	$925,497	$0
2028	$119,359,865	$7,649,634	$161,677	$204,894	$0	$925,497	$0
2029	$133,288,124	$8,050,989	$199,455	$215,956	$0	$925,497	$0
2030	$147,216,382	$8,436,187	$237,233	$226,653	$0	$925,497	$0
2031	$161,144,641	$8,818,506	$275,010	$237,351	$0	$925,497	$0
2032	$175,072,899	$9,184,475	$312,788	$247,992	$0	$925,497	$0
2033	$189,001,158	$9,508,147	$350,566	$256,205	$0	$925,497	$0
2034	$202,929,416	$9,867,661	$388,343	$266,644	$0	$925,497	$0
2035	$216,857,675	$10,222,905	$426,121	$277,184	$0	$925,497	$0
2036	$230,785,934	$10,616,241	$463,899	$288,497	$0	$925,497	$0
2037	$244,714,192	$10,932,279	$501,676	$298,870	$0	$925,497	$0
2038	$258,642,451	$11,241,541	$539,454	$308,720	$0	$925,497	$0
2039	$272,570,709	$11,637,139	$577,232	$320,249	$0	$925,497	$0
2040	$286,498,968	$11,949,573	$615,009	$328,081	$0	$925,497	$0
Total	**$3,083,610,228**	**$161,785,335**	**$5,122,429**	**$5,171,649**	**$0**	**$77,215,940**	**$0**
					TOTAL DISCOUNTED BENEFITS	**$3,255,689,641**	

District: 1

PROJECT: US50 Alternative 2: Parkway

EA:
PPNO:

3

INVESTMENT ANALYSIS

SUMMARY RESULTS (US50 Alternative 2: Parkway)

Life-Cycle Costs (mil. $)	$55.1
Life-Cycle Benefits (mil. $)	$1,318.2
Net Present Value (mil. $)	$1,263.1
Benefit / Cost Ratio:	23.93
Rate of Return on Investment:	84.6%
Payback Period:	2 years

ITEMIZED BENEFITS (mil. $)	Total Over 20 Years	Average Annual
Travel Time Savings	$1,237.3	$61.9
Veh. Op. Cost Savings	$73.6	$3.7
Accident Cost Savings	$4.8	$0.2
Emission Cost Savings	$2.5	$0.1
Residual value	$0.0	$0.0
TOTAL BENEFITS	$1,318.2	$65.9
Person-Hours of Time Saved	232,161,755	11,608,088
Fatalities Avoided	1	0
Injuries Avoided	2	0
PDO Avoided	15	1

Should benefit-cost results include:

1) Induced Travel? (y/n)	N	Default = Y
2) Vehicle Operating Costs? (y/n)	Y	Default = Y
3) Accident Costs? (y/n)	Y	Default = Y
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y	Default = Y

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	664	33	$0.0	$0.0
CO_2 Emissions Saved	349,467	17,473	$0.2	$0.0
NO_X Emissions Saved	263	13	$1.1	$0.1
PM_{10} Emissions Saved	5	0	$1.1	$0.1
$PM_{2.5}$ Emissions Saved	5	0		
SO_X Emissions Saved	3	0	$0.1	$0.0
VOC Emissions Saved	93	5	$0.1	$0.0

BENEFIT COST ANALYSIS FOR US50 - ALTERNATIVE 2 (PARKWAY)

BENEFITS AND COST BY YEAR, 2019$

Year	Travel Time Savings	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Design and Construction Costs	Op. and Maintenance Costs	Residual Value
2020	N/A	N/A	N/A	N/A	$45,950,991	N/A	N/A
2021	$19,495,234	$1,475,066	$272,463	$48,320	$0	$805,365	$0
2022	$29,672,151	$2,592,724	$273,762	$107,683	$0	$752,678	$0
2023	$38,434,072	$3,351,700	$273,725	$157,737	$0	$703,437	$0
2024	$45,922,581	$3,980,479	$272,521	$202,035	$0	$657,418	$0
2025	$52,266,793	$4,285,212	$270,303	$224,383	$0	$614,409	$0
2026	$57,584,380	$4,264,636	$267,209	$223,570	$0	$574,214	$0
2027	$61,982,513	$4,537,028	$263,363	$243,881	$0	$536,649	$0
2028	$65,558,738	$4,473,043	$258,876	$119,035	$0	$501,541	$0
2029	$68,401,769	$4,381,763	$253,850	$116,759	$0	$468,730	$0
2030	$70,592,233	$4,275,373	$248,373	$114,330	$0	$438,065	$0
2031	$72,203,345	$4,166,634	$242,526	$111,686	$0	$409,407	$0
2032	$73,301,534	$4,037,457	$236,381	$107,972	$0	$382,623	$0
2033	$73,947,014	$3,921,060	$230,002	$105,230	$0	$357,592	$0
2034	$74,194,320	$3,789,650	$223,447	$102,346	$0	$334,198	$0
2035	$74,092,786	$3,656,052	$216,764	$99,337	$0	$312,335	$0
2036	$73,686,996	$3,525,856	$210,000	$95,454	$0	$291,901	$0
2037	$73,017,194	$3,415,330	$203,193	$92,713	$0	$272,805	$0
2038	$72,119,661	$3,284,909	$196,378	$89,692	$0	$254,958	$0
2039	$71,027,059	$3,150,910	$189,585	$86,603	$0	$238,279	$0
2040	$69,768,753	$3,044,880	$182,840	$83,865	$0	$222,690	$0
Total	**$1,237,269,128**	**$73,609,761**	**$4,785,558**	**$2,532,630**	**$0**	**$55,080,287**	**$0**
					TOTAL BENEFITS	**$1,318,197,077**	

BENEFITS AND COSTS IN CONSTANT DOLLARS
Discount Rate = 7%

Year	Travel Time Savings	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Design and Construction Costs	Op. and Maintenance Costs	Residual Value
2020	N/A	N/A	N/A	N/A	$45,950,991	N/A	N/A
2021	$20,859,901	$1,578,321	$291,535	$51,702	$0	$861,741	$0
2022	$33,971,646	$2,968,409	$313,430	$123,286	$0	$861,741	$0
2023	$47,083,391	$4,105,976	$335,325	$193,234	$0	$861,741	$0
2024	$60,195,136	$5,217,595	$357,219	$264,826	$0	$861,741	$0
2025	$73,306,882	$6,010,232	$379,114	$314,709	$0	$861,741	$0
2026	$86,418,627	$6,400,069	$401,008	$335,518	$0	$861,741	$0
2027	$99,530,372	$7,285,475	$422,903	$391,620	$0	$861,741	$0
2028	$112,642,117	$7,685,520	$444,797	$204,524	$0	$861,741	$0
2029	$125,753,862	$8,055,692	$466,692	$214,656	$0	$861,741	$0
2030	$138,865,607	$8,410,306	$488,587	$224,904	$0	$861,741	$0
2031	$151,977,353	$8,770,148	$510,481	$235,081	$0	$861,741	$0
2032	$165,089,098	$9,093,126	$532,376	$243,173	$0	$861,741	$0
2033	$178,200,843	$9,449,147	$554,270	$253,589	$0	$861,741	$0
2034	$191,312,588	$9,771,742	$576,165	$263,903	$0	$861,741	$0
2035	$204,424,333	$10,087,162	$598,059	$274,075	$0	$861,741	$0
2036	$217,536,079	$10,408,904	$619,954	$281,795	$0	$861,741	$0
2037	$230,647,824	$10,788,397	$641,849	$292,865	$0	$861,741	$0
2038	$243,759,569	$11,102,769	$663,743	$303,153	$0	$861,741	$0
2039	$256,871,314	$11,395,354	$685,638	$313,201	$0	$861,741	$0
2040	$269,983,059	$11,782,723	$707,532	$324,531	$0	$861,741	$0
Total	**$2,908,429,601**	**$160,367,070**	**$9,990,677**	**$5,104,345**	**$0**	**$63,185,811**	**$0**
					TOTAL DISCOUNTED BENEFITS	**$3,083,891,693**	

District: 1

PROJECT: US50 Alternative 3: Controlled Access

EA:
PPNO:

3

INVESTMENT ANALYSIS

SUMMARY RESULTS (US50 Alternative 3: Controlled Access)

Life-Cycle Costs (mil. $)	$98.3
Life-Cycle Benefits (mil. $)	$1,427.3
Net Present Value (mil. $)	$1,329.0
Benefit / Cost Ratio:	14.52
Rate of Return on Investment:	55.7%
Payback Period:	3 years

ITEMIZED BENEFITS (mil. $)	Total Over 20 Years	Average Annual
Travel Time Savings	$1,306.2	$65.3
Veh. Op. Cost Savings	$77.3	$3.9
Accident Cost Savings	$36.4	$1.8
Emission Cost Savings	$2.4	$0.1
Residual value	$5.1	$0.3
TOTAL BENEFITS	$1,427.3	$71.4
Person-Hours of Time Saved	245,092,621	12,254,631
Fatalities Avoided	7	0
Injuries Avoided	48	2
PDO Avoided	131	7

Should benefit-cost results include:

1) Induced Travel? (y/n)	N	Default = Y
2) Vehicle Operating Costs? (y/n)	Y	Default = Y
3) Accident Costs? (y/n)	Y	Default = Y
4) Vehicle Emissions? (y/n) includes value for CO_2e	Y	Default = Y

	Tons		Value (mil. $)	
EMISSIONS REDUCTION	Total Over 20 Years	Average Annual	Total Over 20 Years	Average Annual
CO Emissions Saved	808	40	$0.0	$0.0
CO_2 Emissions Saved	342,240	17,112	$0.2	$0.0
NO_X Emissions Saved	266	13	$1.1	$0.1
PM_{10} Emissions Saved	4	0	$0.9	$0.0
$PM_{2.5}$ Emissions Saved	4	0		
SO_X Emissions Saved	3	0	$0.1	$0.0
VOC Emissions Saved	93	5	$0.1	$0.0

BENEFIT COST ANALYSIS FOR US50 - ALTERNATIVE 3 (CONTROLLED ACCESS-FREEWAY)

BENEFITS AND COST BY YEAR, 2019$

Year	Travel Time Savings	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Design and Construction Costs	Op. and Maintenance Costs	Residual Value
2020	N/A	N/A	N/A	N/A	$88,617,993	N/A	N/A
2021	$20,582,011	$1,469,565	($1,246,470)	$32,178	$0	$856,430	$0
2022	$31,325,605	$2,594,477	($596,017)	$90,500	$0	$800,402	$0
2023	$40,575,407	$3,390,239	($25,335)	$142,667	$0	$748,039	$0
2024	$48,480,885	$4,019,185	$473,229	$186,884	$0	$699,102	$0
2025	$55,178,346	$4,323,897	$906,669	$209,224	$0	$653,366	$0
2026	$60,792,012	$4,303,135	$1,281,371	$208,465	$0	$610,623	$0
2027	$65,435,025	$4,575,201	$1,603,167	$228,887	$0	$570,675	$0
2028	$69,210,360	$4,521,386	$1,877,374	$105,726	$0	$533,342	$0
2029	$72,211,674	$4,455,030	$2,108,843	$104,363	$0	$498,450	$0
2030	$74,524,082	$4,378,006	$2,301,991	$102,748	$0	$465,841	$0
2031	$76,224,878	$4,291,993	$2,460,842	$100,918	$0	$435,366	$0
2032	$77,384,187	$4,198,497	$2,589,056	$98,909	$0	$406,884	$0
2033	$78,065,580	$4,098,865	$2,689,963	$96,750	$0	$380,265	$0
2034	$78,326,627	$3,994,299	$2,766,586	$94,469	$0	$355,388	$0
2035	$78,219,408	$3,885,873	$2,821,671	$92,090	$0	$332,138	$0
2036	$77,790,992	$3,997,714	$2,857,708	$101,968	$0	$310,410	$0
2037	$77,083,864	$3,887,631	$2,876,954	$99,593	$0	$290,102	$0
2038	$76,136,323	$3,775,698	$2,881,451	$97,135	$0	$271,124	$0
2039	$74,982,852	$3,652,527	$2,873,047	$93,985	$0	$253,387	$0
2040	$73,654,450	$3,529,290	$2,853,410	$90,919	$0	$236,810	$5,066,600
Total	**$1,306,184,566**	**$77,342,508**	**$36,355,511**	**$2,378,379**	**$0**	**$98,326,136**	**$5,066,600**
					TOTAL BENEFITS		**$1,427,327,564**

BENEFITS AND COSTS IN CONSTANT DOLLARS
Discount Rate = 7%

Year	Travel Time Savings	Vehicle Op. Cost Savings	Accident Reductions	Vehicle Emission Reductions	Design and Construction Costs	Op. and Maintenance Costs	Residual Value
2020	N/A	N/A	N/A	N/A	$88,617,993	N/A	N/A
2021	$22,022,752	$1,572,434	($1,333,722)	$34,431	$0	$916,380	$0
2022	$35,864,685	$2,970,417	($682,379)	$103,614	$0	$916,380	$0
2023	$49,706,618	$4,153,189	($31,036)	$174,773	$0	$916,380	$0
2024	$63,548,551	$5,268,332	$620,307	$244,967	$0	$916,380	$0
2025	$77,390,484	$6,064,489	$1,271,650	$293,448	$0	$916,380	$0
2026	$91,232,417	$6,457,846	$1,922,993	$312,850	$0	$916,380	$0
2027	$105,074,350	$7,346,773	$2,574,336	$367,543	$0	$916,380	$0
2028	$118,916,283	$7,768,582	$3,225,679	$181,657	$0	$916,380	$0
2029	$132,758,216	$8,190,391	$3,877,022	$191,867	$0	$916,380	$0
2030	$146,600,149	$8,612,201	$4,528,365	$202,120	$0	$916,380	$0
2031	$160,442,083	$9,034,010	$5,179,708	$212,417	$0	$916,380	$0
2032	$174,284,016	$9,455,819	$5,831,051	$222,761	$0	$916,380	$0
2033	$188,125,949	$9,877,628	$6,482,394	$233,152	$0	$916,380	$0
2034	$201,967,882	$10,299,437	$7,133,737	$243,591	$0	$916,380	$0
2035	$215,809,815	$10,721,247	$7,785,080	$254,081	$0	$916,380	$0
2036	$229,651,748	$11,801,906	$8,436,423	$301,026	$0	$916,380	$0
2037	$243,493,681	$12,280,306	$9,087,766	$314,597	$0	$916,380	$0
2038	$257,335,614	$12,761,605	$9,739,109	$328,309	$0	$916,380	$0
2039	$271,177,547	$13,209,463	$10,390,452	$339,901	$0	$916,380	$0
2040	$285,019,480	$13,657,238	$11,041,795	$351,826	$0	$916,380	$19,606,143
Total	**$3,070,422,320**	**$171,503,314**	**$97,080,726**	**$4,908,932**	**$0**	**$106,945,593**	**$19,606,143**
					TOTAL DISCOUNTED BENEFITS		**$3,363,521,436**

Appendix K
Storey County Master Plan

Official Master Plan Map of Storey County McCarran

Adopted by Planning Commission
August 4, 2016
(Page 3 of 3)

Storey County
Lyon County

Transition:
From Resources to Industrial

Master Plan - Land Use

- Resource - R
- Historic Resource Interface - HRI
- Single-Family Residential - SFR
- Multi-Family Residential - MFR
- Single-Family Estate - SFE
- Rural Residential - RR
- Commercial - C
- Mixed-Use Commercial-Residential - MUCR
- Industrial - I
- Industrial-Professional - IP
- Public Facilities - PF
- Pyramid Lake Paiute Tribe - T
- Transition

N
W E
S

0 2,500 5,000 10,000 Feet

8/8/2016 -- MP_LandUse_MCN_03

The data contained herein has been compiled on a Geographic Information System for the use of Storey County. The data does not represent survey delineation and should not be construed as a replacement for the authoritative source, plat maps, deeds, resurveys, etc. No liability is assumed by Storey County as to the sufficiency or accuracy of the data.

This is to certify that this is the Official Master Plan Map of Storey County

D. Hindle IV 8/4/16

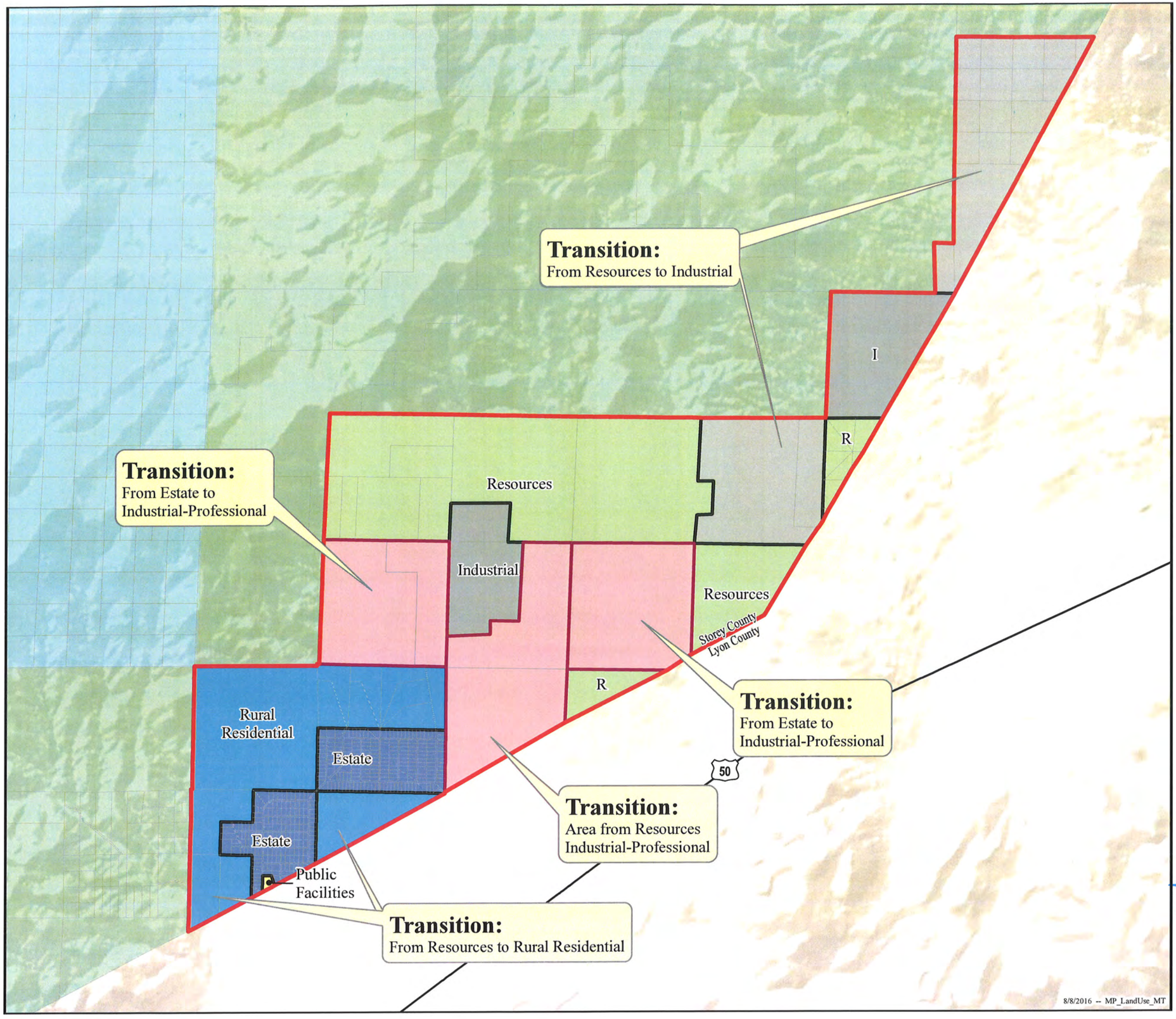
Jim Hindle Date
Storey County Planning Commission Acting Chairperson

Lyndi Renaud 8-4-16

Lyndi Renaud Date
Storey County Planning Commission Secretary

Official Master Plan Map of Storey County Mark Twain

Adopted by Planning Commission
August 4, 2016



Master Plan - Land Use

- Resource - R
- Historic Resource Interface - HRI
- Single-Family Residential - SFR
- Multi-Family Residential - MFR
- Single-Family Estate - SFE
- Rural Residential - RR
- Commercial - C
- Mixed-Use Commercial-Residential - MUCR
- Industrial - I
- Industrial-Professional - IP
- Public Facilities - PF
- Pyramid Lake Paiute Tribe - T
- Transition

N
W E
S

0 2,000 4,000 8,000 Feet

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This is to certify that this is the Official Master Plan Map of Storey County

8/4/16

Jim Hindle Date
Storey County Planning Commission Acting Chairperson

Lyndi Renaud 8-4-16

Lyndi Renaud Date
Storey County Planning Commission Secretary

Appendix L
Public Outreach Response (Question 5)

Do you have any additional comment or feedback regarding the US 50 Operational Study?
no
hopefully this would also cut down on the number of "Off Roaders" riding on state and public roads and highways.
Excellent presentation and addressed the proposals in a detailed fashion. I am looking forward to continued participation in your process.
11 traffic signals are too many and will cause congestion along HWY 50. I want to keep the higher speeds along the road but I am very concerned about drivers (especially teen aged drivers) that have to make a left hand turn onto hwy 50. As a parent, I am scared to send my child out to take a left onto 50. However, if I owned property that would be taken in order to create frontage roads that would be extremely frustrating. For these reasons I believe that the Parkway option is the best.
The US 50 corridor is the main route for a lot of communities moving a large amount of commuter traffic. This needs to be maintained we do not need to turn it into the next pyramid way. The county continues to approve developments at random locations, Forcing more access points and congestion. Limited access and continual traffic flows need to be maintained and Limited signals throughout.
I was unable to zoom the presentation on 5/11. The power point slide presentation by itself was not helpful. With the area off of Fort Churchill growing significantly, people are growing increasing impatient waiting for the vehicles ahead of them to make a left turn. Please strongly consider a traffic light with a left turn arrow, especially with the projected continuation of building more homes on the north side of Fort Churchill
Your slides are missing key information,
I could not load the data from the meeting. But, by all means please place additional traffic signals on highway in the study area. Access to highway 50 from residential areas is difficult and dangerous now with all of the traffic now. A traffic break such as a light is needed. Roundabouts won't work, too much flow at rush hours. It will just get worse with all the houses being built currently. Also suggest you raise speed limit in Moundhouse to 55. No reason it should be 45 there, but 55 in Carson City as you leave Lyon County. Need NHP out here ripping speeders.
extend Dayton valley road!! make it so people don't need to drive thru town
Question 4 - is a horrible question - it does not allow for the balancing of needs. No one priority should dictate a project. Next time, delete question 3, which would have been obvious after 1 and 2 and add a question for identifying a second priority. My thoughts on a second priority would be mobility.
Entrance onto 50 from S Occidental is a nightmare and a complete hazard. Making S Occidental a non viable entrance onto 50 seems to be the last resort. Has anyone looked into roundabouts and creating access through straight aways for traffic that is going through. The roundabout concept takes drivers time to get used to however it keeps traffic moving. The roundabout that was generated in Meyers south of Tahoe has seemed to work out great for traffic in all directions. The volume on the videos was not working so I am not sure if this was something that was mentioned.
how about fixing the road now as it's in bad shape
Maybe there should be a bypass that goes from East Dayton/ Stagecoach to South 395/ 580 near US 50 South Lake Tahoe Hwy to maybe alleviate some Truck Traffic through downtown Dayton and all the current lights between Dayton and 580 South as well as the proposed lights in the upcoming plans sort of like the Southwest Expressway in Reno!!
If you have a light at Retail Rd then we don’t need another light at Pine Cone Rd. Just eliminate the left turn option at Pine Cone onto 50.
None of the plans are great.
There needs to be left turn access from Pine Cone Rd to Hwy 50 or traffic will move thru the Smiths shopping center parking lot. You also need a left turn from Enterprise to Hwy 50. That is the transfer station access on that road and to get back to Hwy 50 requires a left turn or they will drive along the desert until they can cross Hwy 50 anyways.
Make it like you did in stagecoach. That seems to be working.
I've lived here for decades and see two major things that need to be addressed. There are too many of us old people mixing with younger drivers. I hate to say this but we need to reduce the speed between 6 Mile and Smiths. 45 means people will still be driving 50 to 55 for the most part but that is much safer than 65 to 70. Number 2 is Riverboat to Cardelli. There was a major error when planning this intersection. The intersection should have been designed to align Riverboat and Cardelli. I've watched more near accidents there than anywhere else around. This mis-alignment is the biggest part of the problem. This problem should be addressed immediately as you crash figures show. Thank you!
Definitely need longer exit/turn off lanes to some of the side roads. Example trying to turn off at Dollar General with traffic going at 60mph, it’s way too short without causing traffic behind you to have to slow down if they can’t move over.
Although Controlled Access is the most expensive, its hands down most safe, speedier traffic flows, and options to keep traffic flowing, should there be a fatal on the main highway. Also must consider high fencing for wild horses.
I believe safety will be greatly improved with the addition of lights throughout the proposed segment of US 50. Many accidents stem from the lack of surrounding awareness and lack of visibility especially at night when horses and oncoming traffic can cause serious accidents.
It's a highway, don't want a lot of traffic signals.
Signals at Riverboat and both sides of Smith’s (Retail and Pine Cone) are a must. Most people use Riverboat instead of Six Mile, at least in the 21 years I’ve lived on RB. A signalized T at Riverboat would be an improvement over current conditions, but the NDOT proposals would be fine as well.
We need a left hand turn out of Enterprise for the busy church services and waste management will need access. If all we can do is turn right and flip around at fortune that will create a chatoic mess. Please re evaluate another solution to provide left hand turning access onto the 50 in Dayton. Thank you
Unless NDOT is going to install a freeway through Dayton Valley the long term concept must focus on moving the maximum number of vehicles safely without delay. The traffic volumes have nowhere to go but up. Take the opportunity now while the land is available and affordable to pursue the controlled access concept, if you miss this opportunity it will cost a lot more down the road to fix the challenges this highway will bring. The controlled access concept is not only the safest, it also maximizes multi-modal transportation and mobility. The only priority listed as an option that it does not address is providing access to the corridor. Signalizing all of the intersections will be a nightmare and should be avoided.
Arterial concept is a good short term fix. But only short term--will have to be revisited in `10-15 years as more houses are built. This needs future thinking and planning. The only future thinking model is the controlled access concept. It still has a few bugs that need looking at but you are looking ahead instead of behind. increase to 3 lanes each direction on 50 and this is a good concept.
Any thoughts about widening Cardelli Road South of 50? The volume of morning traffic will be high since we cannot make a left turn from Ambrose and if the route chosen also closes left turns from Occidental there will only be Cardelli or Churchill for them to make a left from, depending on which is closer for them in those tracts of homes. As Dayton is growing Safety and Multi-modal now needs to be addressed. There are places being built that are walkable for some if you could safely cross Hwy 50. All the homes being built will bring Dayton into a Township or City, we need the sidewalks and crosswalks to get to businesses so we don't have to drive everywhere. I also support the use of round a bouts at more minor intersections to help keep the traffic flowing and allowing full access to the highway. I do however understand that not all do. I also understand that commute time is essential to all commuters, if a compromise between the Arterial and Parkway could be worked out a bit more it might work for both. I foresee the Controlled access as being great for commuting but possibly a bit of a problem as the town expands eastward as it is because of the access to businesses.
the continued expansions and building of structures, has more vehicles using hwy 50. No surprise ! However the lack of crossings controlled by either lights / or roundabouts has not kept up with growth ! On any given day, any given time ,close encounters of the wrong type are happening. Speed also plays a factor.
Along with safety being an issue, the ability to enter onto 50 at any time of day from most side points is a terrifying task. Many blind spots with no ability to cross 50 into an entry lane. This is a town with a major thoroughfare that needs to be brought into the 21st century. Completing this overhaul ASAP is a must! Thank you!!
With the new master planned communities being built, and new businesses going in, I feel that easy, safe access on to Hwy 50 from West Dayton past Six Mile Canyon road is top priority. The slide that shows how many accidents at the points of entry is 2.5 years old. I am sure there are a lot more by mid 2021. The addition of horse fencing is very important as well - for the horses and drivers.
It's getting harder and harder to get across us50 at ft Churchill
Put a left turn lane from Enterprise on to US 50. That part of town is growing. Near misses happen there.

Priority needs to be on Dayton not on HWY 50. If more concerned with Hwy 50 then may as well build a by-pass
IMHO a combination of merge lanes (similar to those from Copper Canyon to Silver Springs), cement center curbing, and frontage roads would help funnel traffic more safely than a plethora of traffic lights. Too, roundabouts work very well WHEN THEY ARE EXPLAINED CORRECTLY TO THE DRIVING PUBLIC, in addition to the laws being followed (enforced?) and rumble strips preceding them all. This is NOT just an enforcement problem, it's an issue of the increase in traffic stemming from the influx of new residents from outside the state. The biggest problem comes in with the small percentage but highly visible/evident selfish and ignorant drivers that have no regard for anyone else on the road... But that's an issue of society, not engineering.
11 traffic signals is absolutely ridiculous! Please do not do that to us!
I am very concerned with the Controlled Access model shown as the model shows an on-ramp going directly through my property. I did not buy a large parcel of land to have a highway go through the middle of my property!
Yes. Enterprise Way and Hwy 50 have not been addressed in the study. It will be extremely unsafe to leave this T-section unaddressed. There needs to be a left hand turn access coming out of Enterprse. There is a church experiencing growth and there is also traffic coming from the dump. A design turn such as is now constructed at Fortune Drive would be ideal. Traffic flows and does not completely stop going away from Smith's, while it does stop for when drivers need to make a left turn onto Fortune or a left turn onto Hwy 50. Please consider this! Kathleen Sturgeon, 162 Rose Peak Dr., Dayton
Make a left turn at Enterprise to head east.
I know that this will take years. In future updates is there anyway to provide a time line? In future updates can you provide sequence of the project? Is there anyway to mix the three concepts?
Please reduce the number of lights to the extent possible, a bunch of lights is a commuters nightmare (like on some roads in Sparks). Also, make the developers pay for as much as possible.
Reductions in vehicular speeds should be a safety priority. Coordination with CAMPO relating to regional transit and other multimodal accommodation should be a priority in the Mound House and Dayton urbanized areas.
The Arterial Concept limits the traffic flow on 50 with to many signals. The Controlled Access provides the most traffic flow on 50, while the ramps provide safe, easy access to local traffic. The additional access roads provide for traffic flow for the increasing local population.
I suggest installing a traffic light at Occidental road and Hwy 50.
Concerns with horse/animal fencing & safety (restricting and rerouting of feeding patterns/movement to from the Carson River could produce new issues in movement and safety in neighborhoods and across Hwy 50, wildlife crossing are my preference/priority) Current vehicle speed limits are non-existent - NO ONE drives the speed limit, speed limits need to be reduced, coupled with state and local law enforcement. ORV are a hazard as they travel extremely close to the roadways - again enforcing vehicular laws would deter dangerous speeding and illegal use of ORV. Concerned with increased neighborhood traffic as "short cuts" to circumvent lights and controlled access points.
Hello.I live on six mile canyon and people speed everyday and many accidents.will they change the speed limit?Can the speed limit be lowered to 55mph from fortune and end at 6 mile?How many houses are going to be built.There are not to many as of now on retail rd.Thank you so much for the info you gave us.😀👍
The largest employer in Dayton is the State of Nevada. In order to work, we need to go WEST on highway 50. The Arterial and Parkway concepts seriously impede that travel and are not a very good option for people that live in Dayton. We need to be able to access our homes and get to Carson City in a timely way.

Appendix M
Public Outreach Comments

US 50 Operations Analysis Project
Public Comment Matrix Form

ITEM NO.	TOPIC/LOCATION	COMMENTER & EMAIL	COMMENTS
1	General	Ralph and Deborah Ewing rnewing@pacbell.net	Could you please provide or point me to the location the of the Zoom meeting login information for this meeting?
2	EB Segale Rd.	Gary White gdwhite69.gw@gmail.com	The Segale Rd. intersection, east bound, needs a turn lane added to safely exit as cars coming up from behind at 60-70 mph could rear end vehicles exiting 50 onto Segale Rd. We, who live in this area have had some close calls. Thank you for this consideration.
3	Traffic on Hwy 50 (Specifically: Six Mile Rd. and Churchill Rd.)	Ken Lang ken@4thelangs.com	For me, the object should be to keep the Hwy 50 traffic moving as seamlessly as possible while still making it safe for people to enter and exit the highway. A task easier said than done. The two busiest spots I know of, are Six Mile Road and the entrance to Smith's supermarket. I can't imagine a traffic circle at either one of those locations. A traffic light would work best at the Six Mile Road intersection, along with exit shoulders on the right and signal controlled left turn lanes. But the lights need to favor the highway 50 traffic and not switch every time a vehicle pulls up from the Six Mile Road side or the Ft. Churchill Road side. The only drawback I see to a light at the Ft Churchill Road location would be the inclination to excessive speed on Ft Churchill Rd. With the back of my house up against Ft Churchill Rd., I can tell you it's already being used as a drag strip. But when a traffic light turns yellow and the driver knows he's going to wait 3 to 5 minutes for the light to change again in his favor, he's likely to push it hard to make the light. Some sort of speed control devices like speed bumps might deter that behavior. In front of Smith's would have to be a light as it would be a monumental undertaking to install a traffic circle. A solution might be a partial traffic light similar to the one used at Fortune Drive where the Carson Tahoe Dayton Medical Center is located. But I would not put it at the entrance/exit to the Smith's parking lot. It most likely would work best at Pine Cone Road or Retail Road. For any of these locations, the challenge is getting on to Eastbound U.S. 50.
4	General	Deborah Goodwill debbie.goodwill@icloud.com	Please do not add roundabouts. I think what they did in Stagecoach is a great way to go.
5	Mailing List	Jackson Hurst ghostlightmater@yahoo.com	Would like to be added to the mailing list for the U.S. 50 Dayton Area Operational Study. Mailing address is 4216 Cornell Crossing, Kennesaw, Georgia 30144.
6	Storey County resident involvement	Kathy Canfield kcanfield@storeycounty.org	My concern is previously with the first draft document the Storey County Mark Twain neighborhood, land uses (including a major industrial mine) and master plan were not taken into consideration into the overall development of the draft plan. The Highway 50 corridor is the primary access for all the development in Storey County along the south slope of the County and I have commented that I believe the plan needs to be revised to analyze those impacts with the possible solutions proposed. Because Storey County was excluded from the analysis, I'm concerned Storey County residents, who will be impacted by the project, might have also been excluded from the noticing. As I received this notice yesterday (May 10, a day before the meeting), my ability to assist in getting residents involved is limited. Thank you for your assistance and please feel free to contact me if you have any questions.
7	Concerns crossing 50	Lynn Meadors gojeri2@sbcglobal.net	Please make this project happen. I live off of Ft. Churchill Rd., and work at Riverview Elementary. When anyone crosses Hwy 50 to either side, they are taking such a risk.
8	General	Dirk Goering dgoering@carson.org	The web address provided on the meeting slides and on the fact sheet do not take you to the website, but rather to a page not found • http://www.dot.nv.gov/US50Dayton
9	Survey access questions	Dirk Goering dgoering@carson.org	I did not see the survey the actual page or accessible on the PowerPoint presentation • I would like to post a link to the survey on the CAMPO website? What is the web address to the survey? Here is the web address for the US 50 study website. https://www.dot.nv.gov/projects-programs/programs-studies/u-s-50-dayton-area-corridor-study/-fsiteid-1
10	Public Comment	Dirk Goering dgoering@carson.org	Was there any public comment that took place at the end of the virtual meeting?
11	Meeting Recording	Dirk Goering dgoering@carson.org	Will the recording be posted on the website?

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12	Meeting Recording	John Carter jeepingtahoe@gmail.com	Yes, I was wondering if you guys recorded the meeting? And if so can you send me a link so I may share it?
13	Meeting Recording	Andrew Ailes aailes@vidlerwater.com	Did the virtual meeting for the Dayton Operation Study get cancelled? When I tried to participate in the meeting I was asked for a Meeting ID which I did not have. If it did occur will the video of the meeting be posted online to view
14	Riverboat (Maverick) Occidental and Ambrose areas & Riverboat EB Highway 50	Dianne Williams-Conklin sknydpr@earthlink.net	I live just about a mile east of Hwy 50/Chaves. I drive this highway to my travels to Carson City and further. The biggest problem I see a lot is cross traffic coming out of Riverboat (Maverick) Occidental and Ambrose areas. The motorist in many cases do not stop fully at stop signs and with highway speed limit at 60 mph these motorist make unsafe turns coming out of these streets. The other issue is the difficulty to make left turn from Riverboat EB hwy 50. Most other intersections in my opinion are less impacted – yet. It may be possible looking at a signal at Riverboat, or as it is like Fortune Dr type signal suggestion. Six Mile Canyon/Churchill intersection also possible future signal. I think with roundabouts such as the newer ones done on Hwy 50 (both in Silver Springs) seems to have collisions occurring with them. Sometimes roundabouts work but other times they don't. I think roundabouts are more for local jurisdictions to improve traffic calming. Just some thoughts from reading about hwy 50 projects plans.
15	Enterprise onto US 50	Greg Goodwill Sw44special@gmail.com	There seems to be no plan for eastbound access from Enterprise onto US 50. In other words, no one would be able to turn left off of Enterprise and travel eastbound on the highway. As you can see, drivers will have to go westbound and maneuver a "U turn somewhere in the Fortune Rd. area. Lacking an eastbound access to US50 from Enterprise, would impact not only cars but commercial vehicles from four companies including the county transfer station. I trust you will agree, this problem is an oversight and would urge you to rethink the plans and provide for access from Enterprise to eastbound US 50. Thank you for your consideration.
16	Left turn onto 50	Deborah Goodwill debbie.goodwill@icloud.com	Please make sure we can turn left onto 50. This is where we go to Church several days a week. Plus the transfer station, vet and various companies are on this street. We live east of Enterprise and would like access be able to turn left. Also no roundabouts. It causes more problems than helping. Either feeder lanes or stop lights. Actually stop lights would slow the traffic down as it has gotten out of control. Thank you for your consideration.
17	Turns on enterprise	Sara Christ daveandsarachrist@gmail.com	We need a left and right turn on enterprise to turn left and right. The dump is there and we have large trucks with trailers. We can't make U-turns to go east. We need to be able to turn east off enterprise.
18	Turn on Fortune Drive	Carole McCune carolemccune@ymail.com	I think for Fortune Drive road there needs to be a left turn onto Hwy 50. A lot of people come from Silver Springs and Ft Churchill to go to the waste station, the vet and Calvary Chapel and to not have a left hand turn lane to get back home and instead have to go all the way by Smith's and turnaround is not a good option. Please reconsider this plan.
19	Traffic Patterns on 50 to include an East bound access from Enterprise Way	Garry Leist garry@ccdayton.org	On behalf of the over 400 members of Calvary Chapel Dayton Valley located on Enterprise Way we have the following concern. We are requesting all considerations for change to traffic patterns on Hwy 50 include an East bound access from Enterprise Way. A large number of those attending services on Sunday and throughout the week live east of Enterprise Way. Any control that would remove the safe entry and access to the east bound lane of 50 would not be in the best interest of serving public safety. The intersection of US 50 and Enterprise way in Dayton Nevada is included in the US 50 Operational Study. After reviewing the Arterial, Parkway and Controlled Access Concepts on www.dot.nv.gov there are concerns about the left turn from Enterprise heading east toward Silver Springs. In the Arterial Concept, there is no left turn which would force all eastbound traffic to turn right, proceed west to Traditions PKWY, at which point (hopefully) a U-Turn could be made to head east. In the Parkway Concept, there is no left turn which would force all eastbound traffic to turn right, proceeding west to Retail Rd (approx. 1.8 miles), at which point (hopefully) a U-Turn could be made to head east. In the Controlled Access Concept, there is no left turn onto US 50, it appears there is a Frontage road heading eastbound, but there is no access to US 50 until (West) Occidental Drive (approx. 2 miles). Calvary Chapel Dayton Valley (CCDV) has activities most days of the week. A rough estimate of potential US 50 usage is 800 per week, or 2400 per month, If half of those attendees (low estimate) turn left that is 1200 left turns per month. The times on these turns range from Monday nights at 8:00pm, Tuesday at 11:30am, and 8:00pm, Wednesdays at 8:00pm, Thursdays at 8:00pm, Fridays at 9:00pm, with the bulk of them Sunday mornings at 10:30am and 12:30pm. There are additional businesses on Enterprise Way that have traffic turning left also, such as the Veterinary Hospital, and the Transfer Station, which along with other businesses on Enterprise have very large trucks that would have difficulty making the U-Turns to head eastward. With this in mind we are requesting to have the intersection of US 50 and Enterprise Way designed as a "High T" to allow traffic to access US 50 Eastbound.
20	US 50 Santa Maria Ranch	Mia Skagen mia.skagen@gmail.com	I saw your survey and plans for 50 in Dayton. I have lived in Dayton for 26 years. We definitely need more lights. I was unable to complete your survey because I couldn't view all videos.

			NDOT is forgetting another very congested hot spot. Santa Maria Ranch is near impossible to get out of. You have traffic coming both ways and pulling out is extremely dangerous. I lived off Fortune for many years and Santa Maria is every bit as dangerous. You have traffic coming in both directions in excess of 65 to 90 mph and multiple horse incidents. Something needs to be done to help the citizens who live there.
21	General	Paula Dieu Jadieu1@gmail.com	All of your proposals are horrible for we who live here! The less traffic signals the better. It will be just like the city I moved away from. These aren't improvements in my opinion!
22	Left turn off of Enterprise Way	William Fitts fittswilliam8@gmail.com	There needs to put into the plan away to turn left off of Enterprise Way on to 50 going east. People will have to go up and make a U turn to go east, that includes many big rigs. that will be more dangerous than the way it is now
23	Rainbow Drive to Cardelli Road	Laura Blank slblank@yahoo.com	My husband and I live in RiverPark, while we not too thrilled with changes to beautiful Dayton, we do feel change must happen. Of the three concepts, we can live with the Parkway Concept, as long as you take the following into consideration: Complete the North and South Frontage Roads from Rainbow Drive to Cardelli Road to relieve the traffic through neighborhoods that were not designed for additional vehicles. • The current plan causes additional miles and drive time to residences in RiverPark trying to get to the lights to cross highway 50. • Vehicles cutting through neighborhoods, for example RiverPark, will endanger drivers, children, and property. • The added traffic causes costs with additional road repairs.
24	Dayton	Laura Blank slblank@yahoo.com	Increase the speed through the town of Dayton to 45 miles an hour. It's an unnecessary speed trap.
25	Alternative Considerations	Kelly Johnson kellyjohnsonlsa@gmail.com	Most importantly, I want it noted that the Controlled Access plan as proposed would, under no circumstances, be considered acceptable to those of us who live off of Segale/James. As currently proposed, I would have an on-ramp running directly through my property. This is not an alternative that should ever be considered as it should be included in the new developer's responsibility to provide adequate access on and off of the highway before the project is ever approved. Not the properties that have been here for decades! I can tell you when I purchased my home on a little over 5 acres, it wasn't with the intent of having a highway on-ramp running through it! I purchased my home and property for the peaceful enjoyment it currently provides. To think that there is a possibility of that being destroyed is incomprehensible to me! To think that this is even a potential consideration is beyond me. While I understand that there needs to be changes made for safer access on and off of Highway 50, it most certainly should not be at the expense of any current homeowners' complete access to peace and quiet on their own property! If I wanted to live in a city with freeways, overpasses, on-ramps and off-ramps, I certainly wouldn't have purchased in Dayton, NV!
26	Enterprise	Kathleen Sturgeon kathleensturgeon@gmail.com	Do they plan on addressing the left hand turn coming out of Enterprise onto Hwy 50?
27	Proposal Consideration	Audrey Allan aallan4325@att.net	Thank you for the opportunity to comment on the U.S. 50 Dayton Operational Study, which improvements, I might add, are needed. I am on the Lyon County Planning Commission, but these comments are not theirs, nor should they be taken or implied to be from that body—these are solely my comments as a Lyon County resident. I was unable to attend your virtual meeting on May 11, 2021, as I had a prior commitment. I have, however, reviewed your slide presentation and the maps of each of the three proposals, Arterial, Parkway and Controlled. I think that the Controlled proposal makes the most sense, with one exception, I think a high-T access would work best for Enterprise Way onto Hwy. 50, rather than the use of an arterial frontage road. Waste Management is on Enterprise Way, their trucks are heavy and traffic is heavy and high on waste collection days. Too, the other industries and businesses—and a church— located on Enterprise Way have heavy cargo/delivery truck and car use on a regular basis. These all add to the wear and tear, cost, and maintenance of an arterial road. I think arterial frontage roads are not intended to support heavy (in every sense) truck use. Most agencies allow, at a minimum, a thirty-day comment period on projects, particularly of this magnitude. Your comment period fell short of this time frame. I sincerely request that you extend your comment period to allow for more public input (most folks I talk to are not aware of your study). During this extended period, I would ask that someone from your agency make an 'in person' presentation on the proposed Operational Study before the Planning Commission at a publicly held meeting. This would go a long way in satisfying public awareness and input. I appreciate your consideration of my comments and request.
28	Horse Survey	Michelle Benko mjbenko74@gmail.com	I can't access it so can you take my opinion. I think horses need more lights on 50 and less houses and more free land thank you
29	Right-of-way	Dave and Karen Hardy dksthardy@aol.com	We own the property across from Smiths and Jack in the Box at the River Rd side of the Retail Rd intersection (11 River Rd). We were pleased to see a light at this location due to the encumbrances of the current traffic configuration there. We were hoping to minimize right of way acquisition or better yet affirm no right of way will need to be acquired at this location.

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30	Speed bumps along River Rd	Dave and Karen Hardy dksthardy@aol.com	Another concern we have, which may be a county question/concern is whether or not we can add speed bumps along River Rd as occasionally we see people going 50-60 mph down the road and in the long term this would be more cost effective as opposed to requesting deputies patrol the area. The amount of traffic would likely increase with a traffic light at this location and speed bumps would help improve safety of the residential area.
31	Right turn US 50 EB	Dave and Karen Hardy dksthardy@aol.com	On an unrelated comment, a widened and longer right turn lane from US HWY 50 EB to Dayton Valley Rd would be highly beneficial to traffic flow if you can somehow include that in this project.
32	Concept Costs	George gmross3267@att.net	What are the cost differences for the different concepts? I would be for controlled access if it is the best cost for the lives and property damage are factored in.
33	Horses	George gmross3267@att.net	I know this is not quite the place for it but the horses need also to be addressed. I have scanned Research_Report_2018_60416.pdf. I looks like we need something in the area for the horses & other wild life migration.
34	Parkway Plan	Dana Ernest Tahoeskiguide2@yahoo.com	As a 10 year resident of the area under study, I would recommend the Parkway Plan as being my preferred alternative.
35	Six Mile/Ft. Churchill	Michelle Caruso from.michelle@yahoo.com	I live in Dayton off of Riverboat and Six Mile Canyon. I believe a traffic signal at Six Mile/Ft. Churchill is most definitely warranted. This is a dangerous crossing with no signal. I believe the traffic moves too fast to put a roundabout.
36	US 50 Corridor Concerns	S King kclking@yahoo.com	It's only getting worse out on The 50 corridor in Dayton. With there already being enough traffic between retail Road and six Mile Canyon/ Fort Churchill Crossing Over 50, there is already over 300 houses approved and/or under construction that will only add to the high traffic on Fort Churchill/6 mile. The statistics confirm. My daughter is two years away from driving and I'm worried about letting her drive on this Corridor. This cannot be a multiple year plan something has to be done soon.
37	Commute Patterns on US 50	S King kclking@yahoo.com	There's also a unique commute pattern developing on Highway 50 between Carson City and USA Parkway. Once USA Parkway was extended, many people now commute to companies that are in operation 24 hours via US 50. You have people rushing to get to work in the evening commute along with those tired after a long day, and vice versa in the morning, changing traditional dynamics greatly. It's a bad recipe and should be taken care of with traffic controls immediately.
38	Ft. Churchill and Six Mile Canyon	S King kclking@yahoo.com	No roundabouts please. Fort Churchill and 6 mile canyon @ 50 with the school at the end of Churchill also with the 350 more homes under construction in my opinion should be the targeted intersection for a stop light. Also with the extension of Teakwood to Stratton in the next year it will free up an island of 200 homes that currently Occidental but with the extension they will be using Stratton to fort Churchill.
39	Alternative Preference	Susan Pansky (representing Stan Lucas) susan@project-one.com	I represent Stan Lucas, who owns extensive property along the Highway 50 corridor in Dayton, specifically the Traditions development west of Enterprise Way and all of the Sage Vista development on both sides of Highway 50. I'd like to voice our opposition to the Controlled Access alternative proposed at Sutro Tunnel Road, Traditions Parkway/Segale Road and Chaves Road/Bryce Street that involves frontage roads and interchanges. The proposed frontage roads, interchanges, and overall design concepts presented in the Controlled Access alternative will extensively interfere with planned future residential and commercial development within these two communities. I have provided two maps to show the future plans of Traditions and Sage Vista for your review. We also do not support the Parkway concept that limits the signalized intersection at Traditions Parkway to a signalized High T intersection, nor the frontage roads proposed at Sage Vista in the Parkway concept. We do support the Arterial concept shown in the presentation with a standard signalized intersection including traffic light at Traditions Parkway. We also support the Arterial concept with a standard signalized intersection at Chaves Road/Bryce Street, but without the proposed frontage roads on the north or south sides. If a frontage road is necessary in the general area of Sage Vista, we would recommend that it end at Rainbow Road rather than at Chaves and Bryce, as the Sage Vista Specific Plan has internal roads that will function as frontage road to reduce traffic on Highway 50. Creating frontage roads up to Chaves and Bryce will interfere with proposed future planned intersections and will create intersection spacing issues on both Chaves and Bryce.