PROJECT SELECTION & PRIORITIZATION PROCESSES

STIP Workshop

Presented by: Bill Lawrence

April 2011

Purpose and Review

- Overview of Project Selection Process
- Review Various Prioritization Processes
  - Take Care of What We Have
  - Make It Work Better
  - Improve Safety
  - Increase Capacity

PROJECT SELECTION PROCESS

***Input*- LRP, MPO's, JHC, UDOT, Public, Data**

	Take Care of What We Have	Make it Work Better	Improve Safety	Increase Capacity
Tools Used	•Asset Management	•Traffic Demand Management •Access Management	•Safety Management System (SMS)	•Project Priority System
Example Projects	•Pavement/Bridge Preservation •Operation and Maintenance	•ITS (Commuter Link, VMS) •Widen Shoulder •Improve Median •Auxiliary Lane •New/Redo Interchange for Congestion Mitigation •HOV Lanes •Intermodal Solutions •Access Control •Incident Management •Choke Point	(Work on all other Strategic Goals Contributes to Improving Safety) •Passing Lanes •Homeland Security •RR X-ing •Signals •Intersection Improvement •Upgrade Guardrail, ADA, Safe Sidewalk… Etc.	(Projects that cost more than $5 Million) •Adding Capacity Lanes •New Highway •Corridor Preservation •New Interchange for Economic Development

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Remember…

Ranking Process is designed to support the **decision-making process**, rather than render a decision.

The process is a means to help the Utah Transportation Commission generally prioritize and rank projects in order of their importance. The reason is that no ranking system can completely measure all project attributes.

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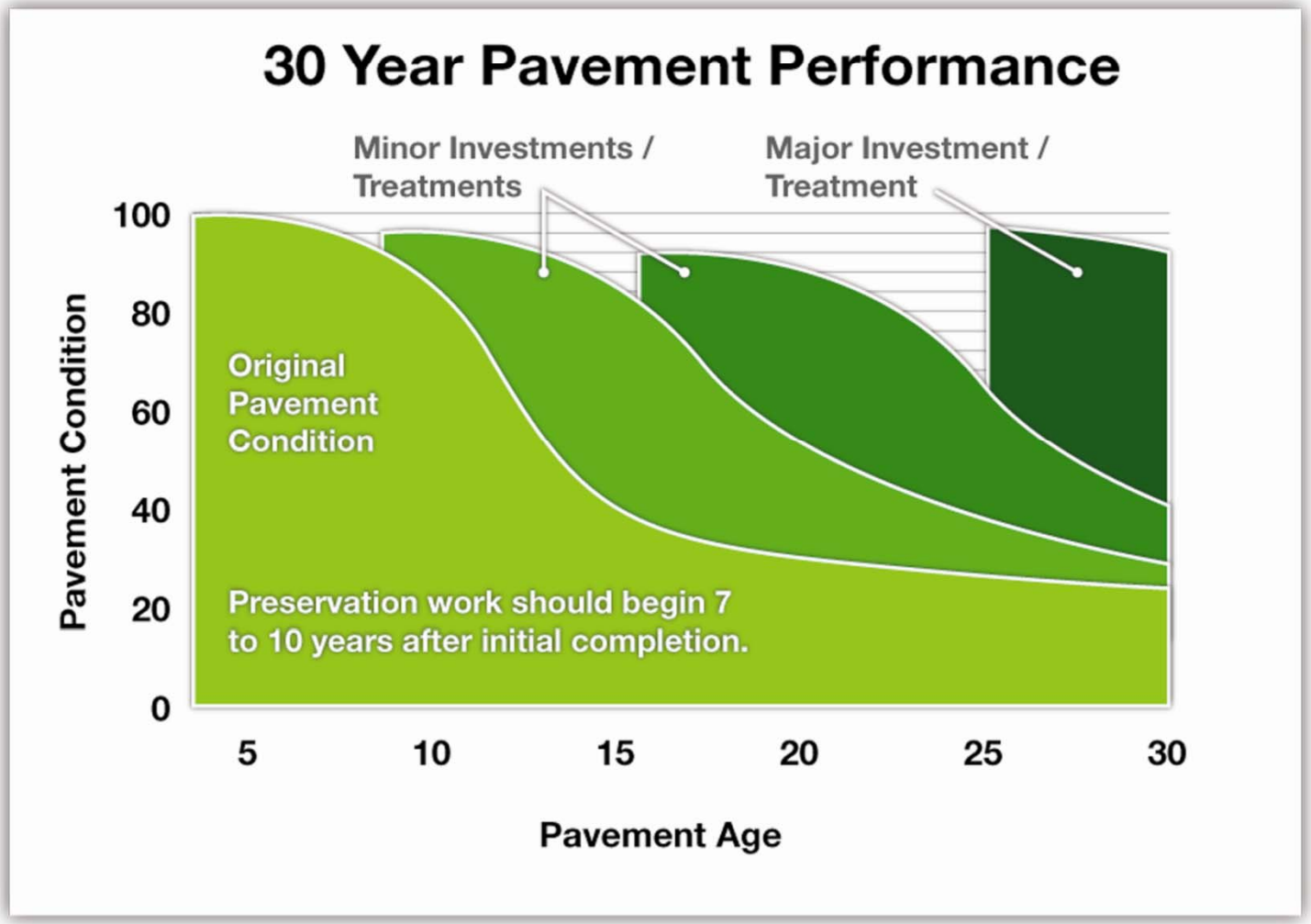
Take Care of What We Have

- Improved decision making, supported by policies, performance based goals, performance measures, and appropriate service levels
- Decisions are based on accurate data, and sound engineering and economic analysis
- Long-term view of assets

Take Care of What We Have



Take Care of What We Have

udot.utah.gov

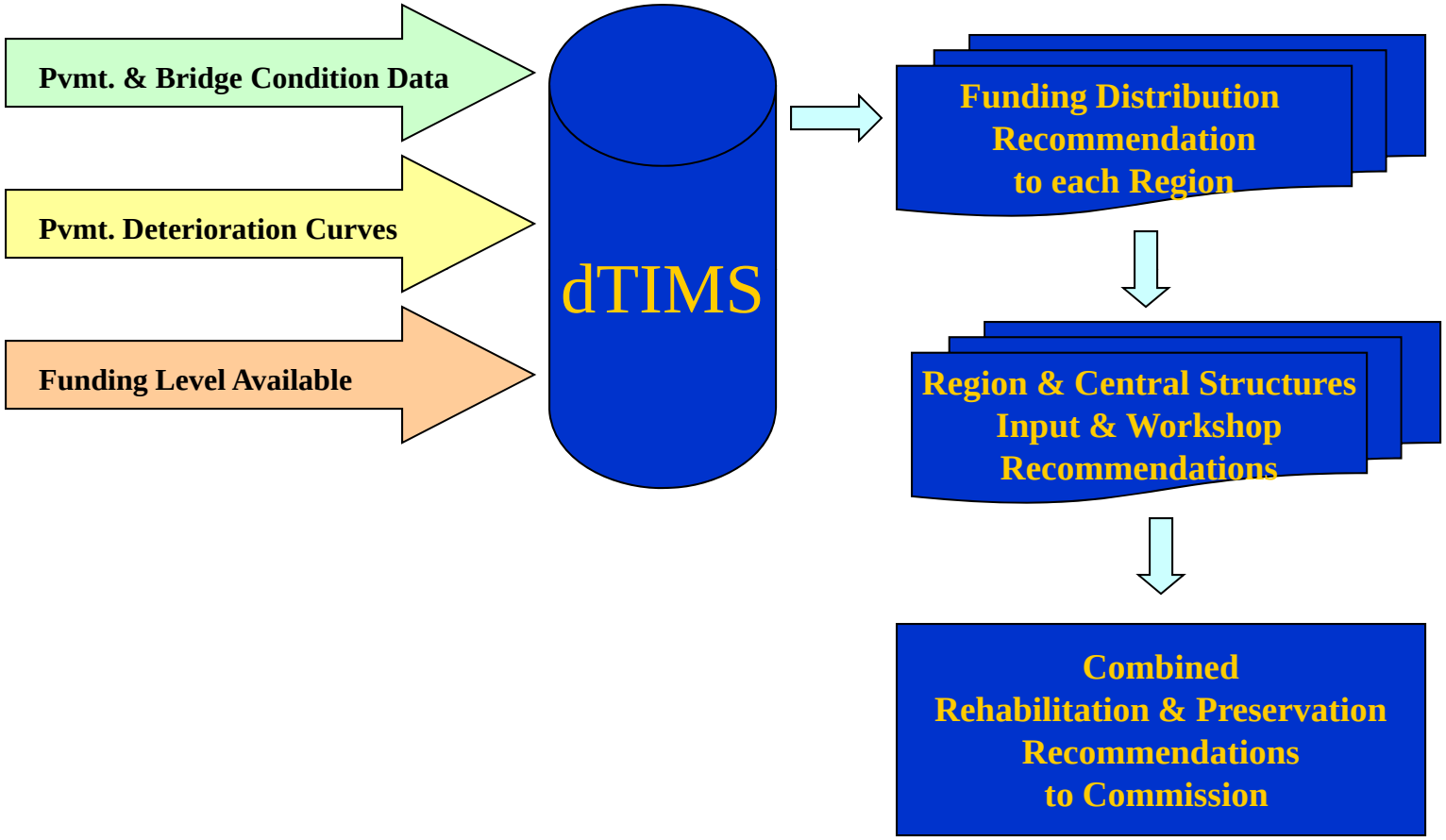
Automated Pavement Data Collection

Take Care of What We Have

Bridge Inspections

Measuring and tracking condition of 1,750 bridges statewide

Take Care of What We Have



Take Care of What We Have

DTIMS Funding Distribution

Fund	With Match	Capacity FY 2015 @ 15 %	Purple Book FY 2013, 2014 @ 75%	Orange Book FY 2012 @ 25%
IM	$ 106,014,779	$ 15,902,217	$ 67,584,422	$ 22,528,141
NHS	$ 73,783,408	$ 11,067,511	$ 47,036,923	$ 15,678,974
STP_FLEX	$ 26,858,727	$ 4,028,809	$ 17,122,438	$ 5,707,479
Total	$ 206,656,914	$ 30,998,537	$ 131,743,783	$ 43,914,594

FY 2012 Orange Book Program - PIN 8071				
Region	Composite %	IM	NHS	STP FLEX
R-1	18%	18%	15%	26%
R-2	28%	29%	25%	32%
R-3	18%	9%	29%	25%
R-4	36%	44%	31%	18%

FY 2013 Purple Book Program - PIN 8074				
Region	Composite %	IM	NHS	STP FLEX
R-1	18%	18%	15%	26%
R-2	28%	29%	25%	32%
R-3	18%	9%	29%	25%
R-4	36%	44%	31%	18%

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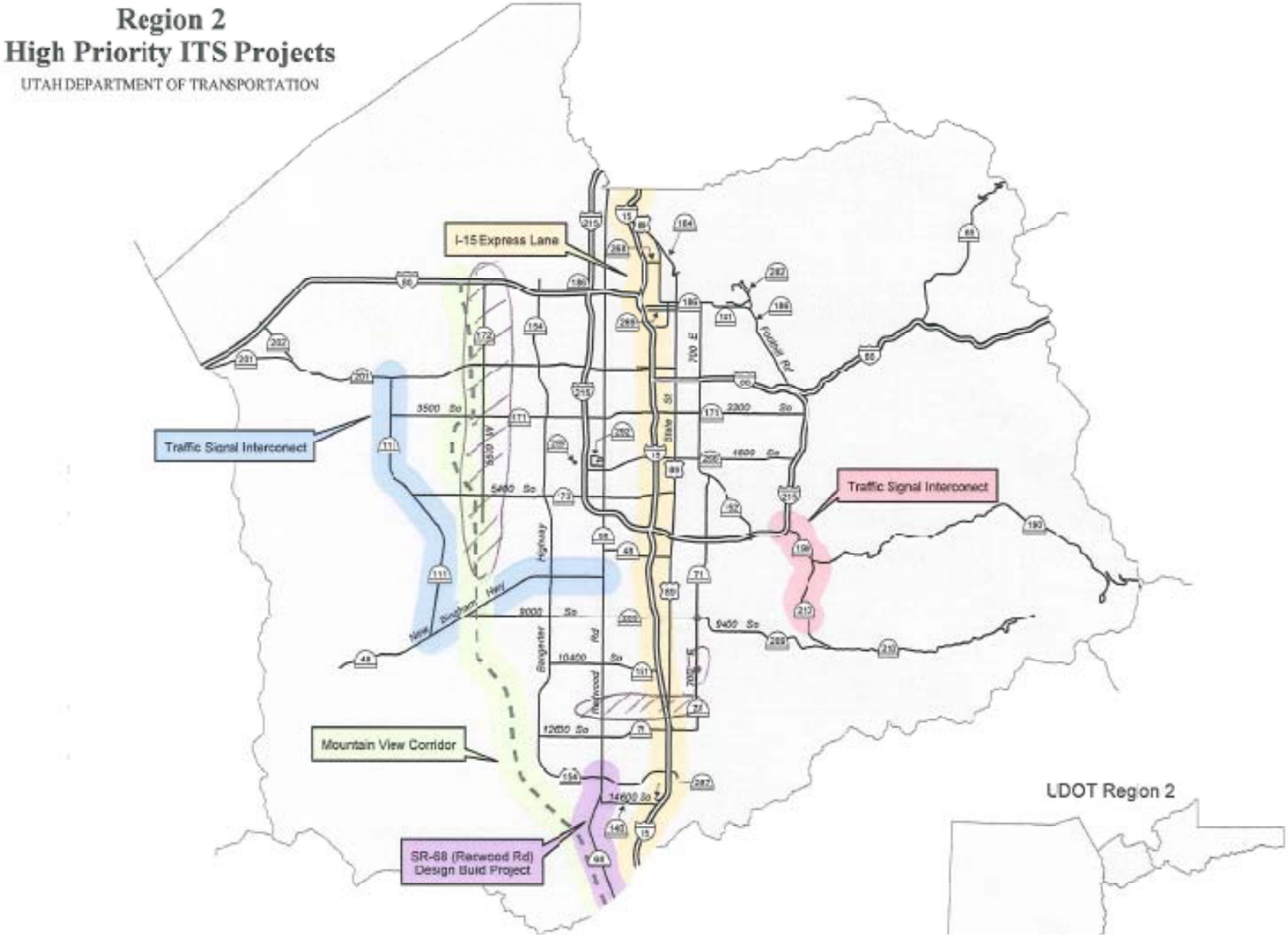
Make It Work Better



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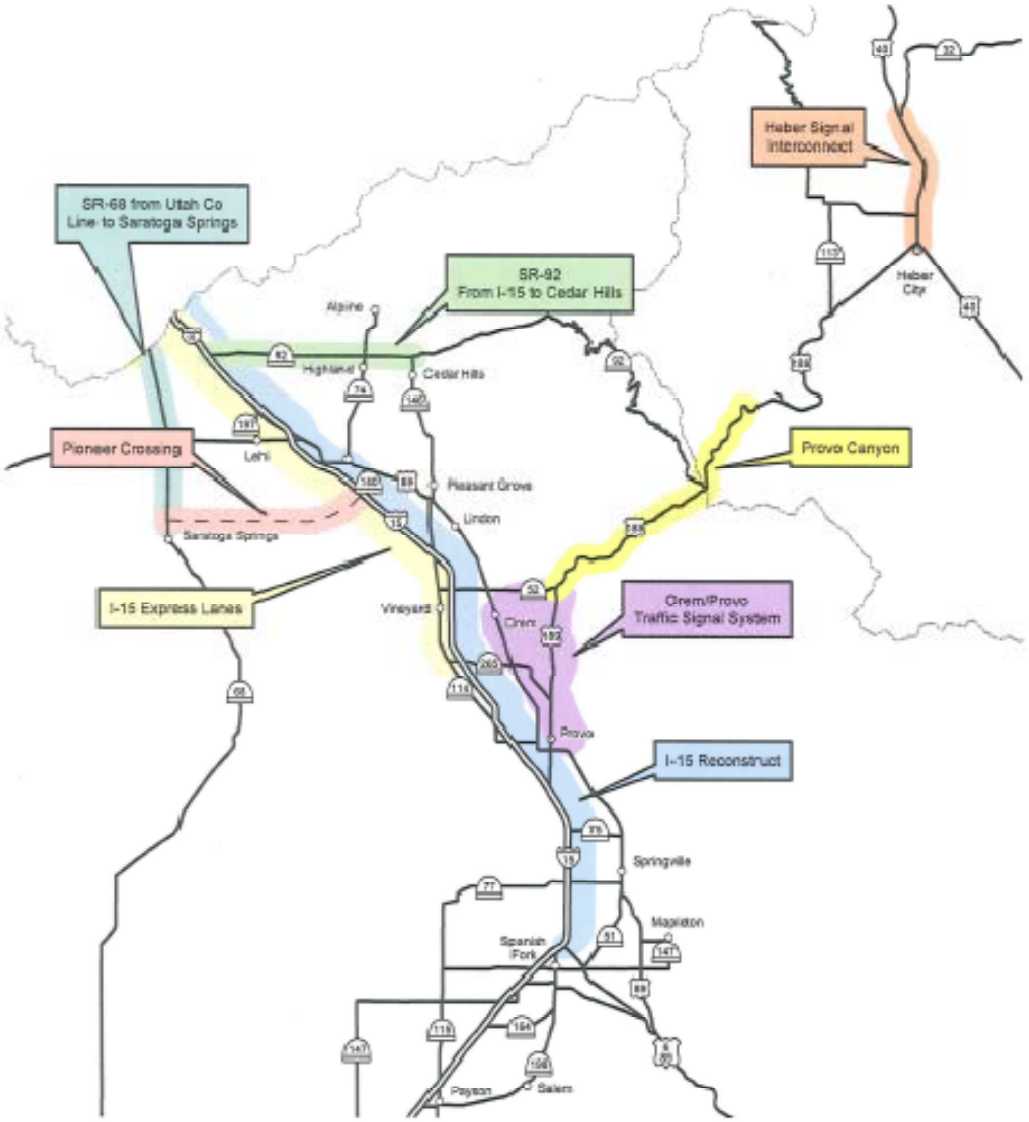
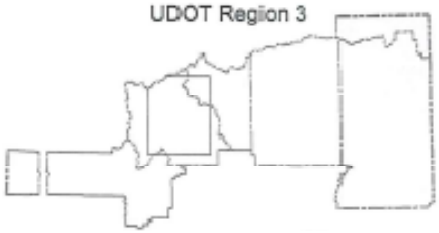


Projects not Mapped:
1- Emergency Operations Dispatch Center Connect
2- Northern Utah County Signal Interconnect (9 each)



Make It Work Better

Capacity – Choke Point

Objective	Factor	Max. Score
Transportation Efficiency	AADT Score (0-10)	10
	V/C Score (0-3)	3
	Constructability Score (0-3)	3
	Region Priority Score (5-10)	10
	Safety Score (1-3)	3
	Total Possible Points	29

Make It Work Better

BASIC FREEWAY FOR 65 MPH FREE FLOW SPEED

Grade Separated Freeway					
	Design Hour Level of Service				
Total # Lanes	A	B	C	D	E
4	*22,300*	*36,700*	*52,700*	*65,500*	*73,700*
6	*33,400*	*55,000*	*79,000*	*98,300*	*110,500*
6+2HOV	*44,500*	*73,400*	*105,300*	*124,600*	*136,800*
8	*44,500*	*73,400*	*105,300*	*131,000*	*147,300*
8+2HOV	*55,600*	*91,700*	*131,600*	*157,300*	*173,600*
10	*55,600*	*91,700*	*131,700*	*163,800*	*184,200*
10+2HOV	*66,700*	*110,000*	*158,000*	*190,100*	*210,500*

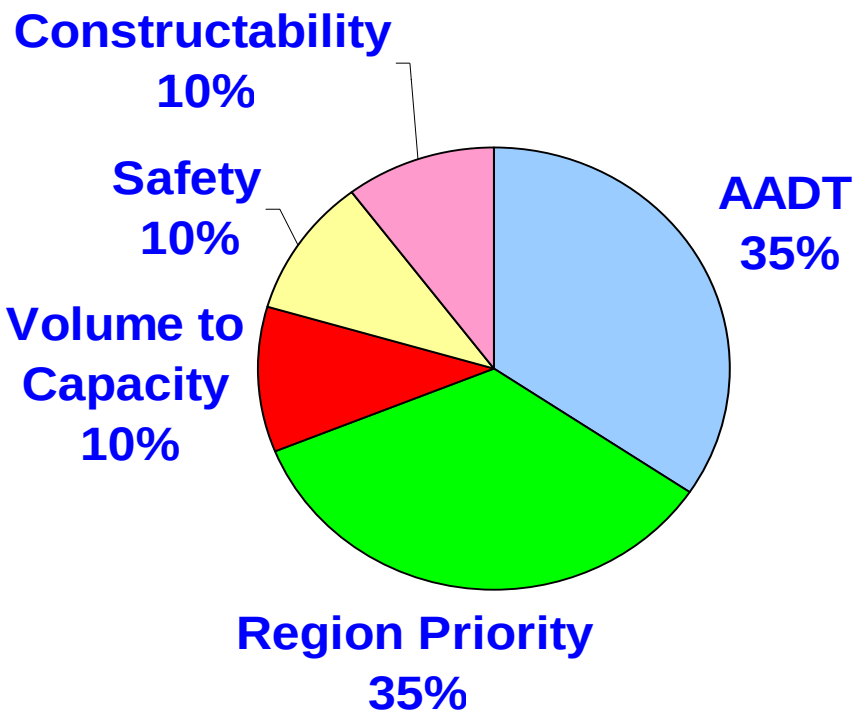
Urbanized

BASIC FREEWAY FOR 75 MPH FREE FLOW SPEED

Rural

Grade Separated Freeway					
	Design Hour Level of Service				
Total # Lanes	A	B	C	D	E
4	*15,600*	*25,700*	*34,900*	*41,377*	*45,800*
6	*23,500*	*38,600*	*52,300*	*62,066*	*68,600*

Ranking Factors Percent Weight
(Choke Point Projects)



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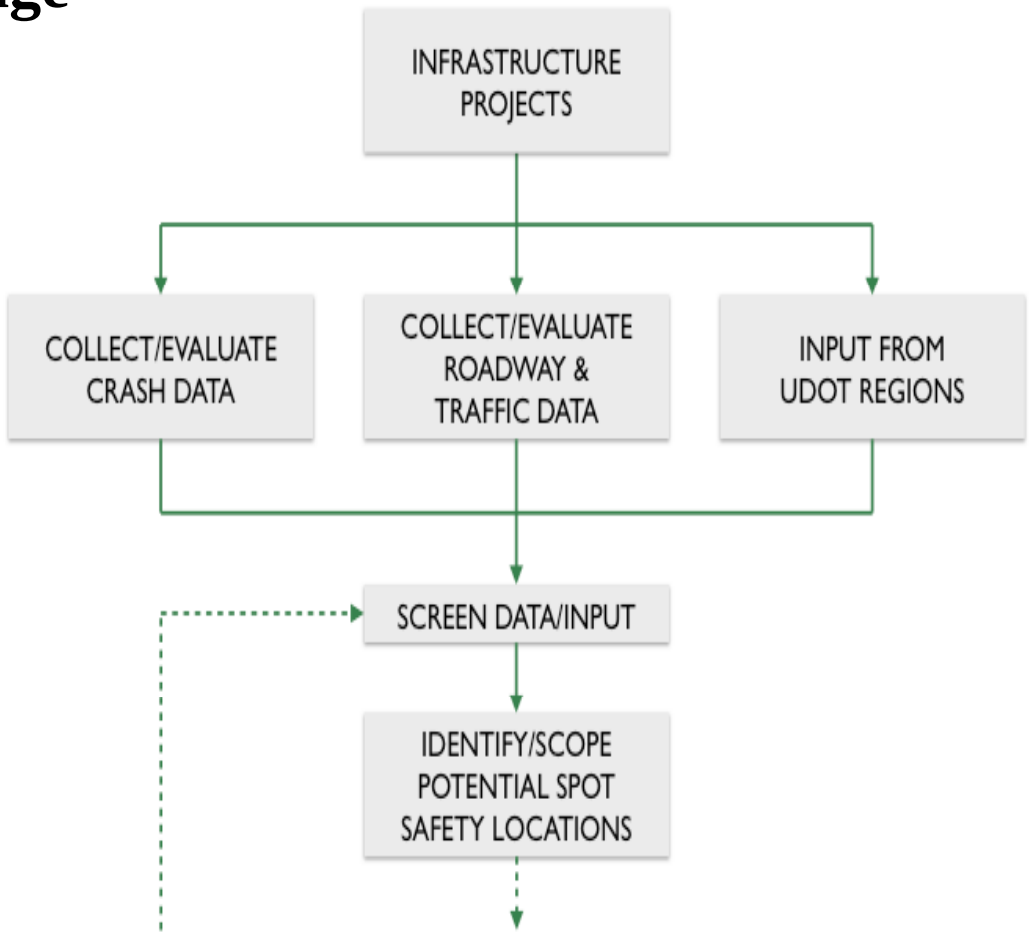
Increase Safety

- High Risk Rural Roads Program
- Highway Safety Improvement Program
- Safe Routes to Schools
- Railroad Crossing

- State Spot Safety Improvement Program
- State Barrier
- State Lighting
- State Signals
- State ADA Ramps

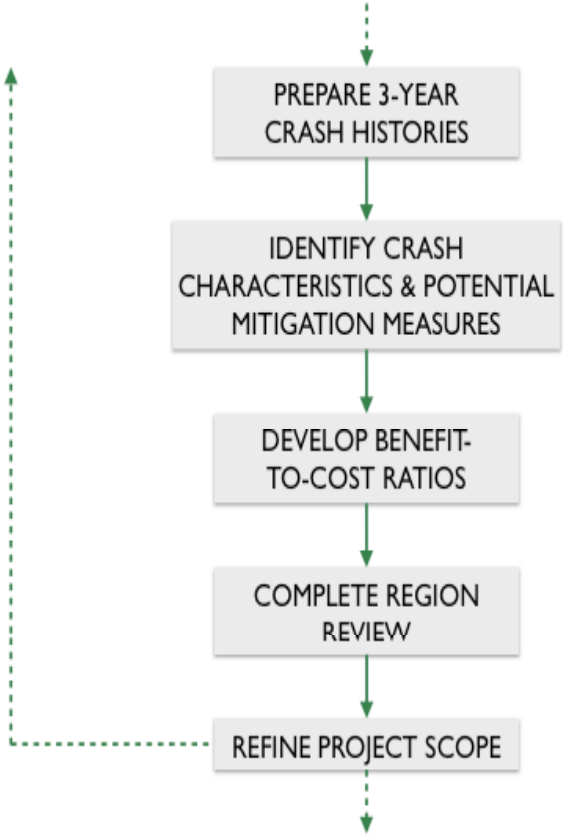
Increase Safety

Planning Stage



Increase Safety

Analysis Stage



Increase Safety

Project Prioritization Factors

- Greatest Benefit to Reduce Fatal and Serious Injury Crashes
- Benefit-To-Cost Ratio
- Timeline to Completion
- Coordination with Other Projects

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Increase Capacity

Capacity - New Facility

Objective	Factor	Max. Score
Transportation Efficiency	Projected ADT on New Facilities in 2015	25
	Projected Truck ADT on New Facilities in 2015	15
	V/C on Existing System if Corridor is not Built	30
	% V/C Improvement on System if Corridor is Built	30
	Total Possible Points	100

Increase Capacity

Capacity - New Facility

Volume/Capacity (V/C)	
Minimum	Score
0	0
0.6	1.5
0.65	3
0.7	4.5
0.75	6
0.8	7.5
0.85	9
0.9	12
0.95	15
1	18
1.05	21
1.1	24
1.15	27
1.2	30

TRUCK AADT

Minimum	Score
0	1.5
1,600	3
2,400	4.5
3,200	6
4,000	7.5
4,800	9
5,600	10.5
6,400	12
7,200	13.5
8,000	15

AADT

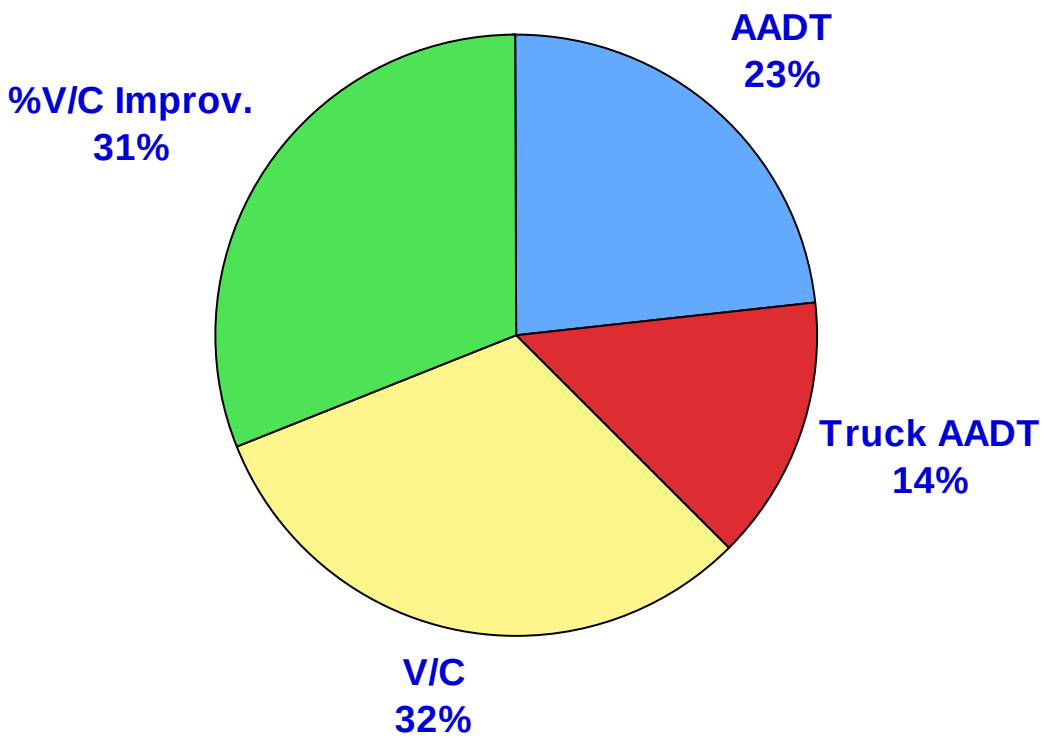
Minimum	Score
0	2.5
16,000	5
24,000	7.5
32,000	10
40,000	12.5
48,000	15
56,000	17.5
64,000	20
72,000	22.5
80,000	25

Percent V/C Improvement

MIN %	Score
0	0
5	3
10	6
15	12
20	21
25	30

Increase Capacity

Ranking Factors Percent Weight (New Facilities)



Increase Capacity

Capacity - Widen Existing Facilities

Objective	Factor	Max. Score
Transportation Efficiency	Total ADT- Volume of Traffic on a Daily Average	20
	Truck ADT	10
	V/C – Measure of a Highway's Congestion	25
	Functional Class – Measure of Road Importance	5
	Transportation Growth	15
Safety	Safety Index – Combination of Measures	25
	Total Possible Points	100

Increase Capacity

- The Safety Index is a value ranging from: 1 (very good) to 10 (very poor), which represents the degree of risk to the driver, in terms of both crash rate and severity.

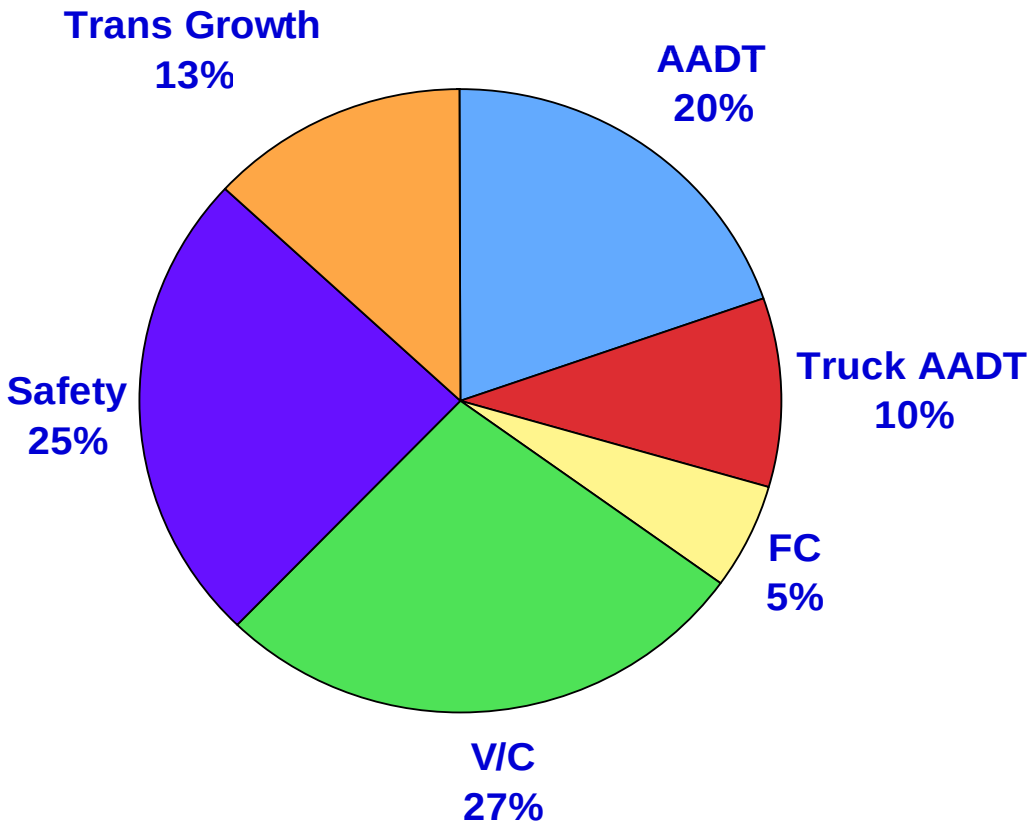
- Input/factors include number of crashes, number of high severity crashes, AADT and functional class.

- The crash rate, (crashes/MVMT) and severity (#/per mile), are weighted 1 through 3 for each mile section, by functional classification, giving a crash rate score and a severity score.

- Safety Index (SI) = Crash Rate Score + 3(Severity Score)-2 (SI Range 1 to 10)

Increase Capacity

Ranking Factors Percent Weight
(Widening Existing Facilities)



Increase Capacity

Interchanges

1. Existing Signals to be Upgraded to Interchanges
2. New Interchanges on Existing Freeways
3. New Interchanges to be Considered as part of a Major Corridor Reconstruction
4. Re-Construction of Existing Interchanges

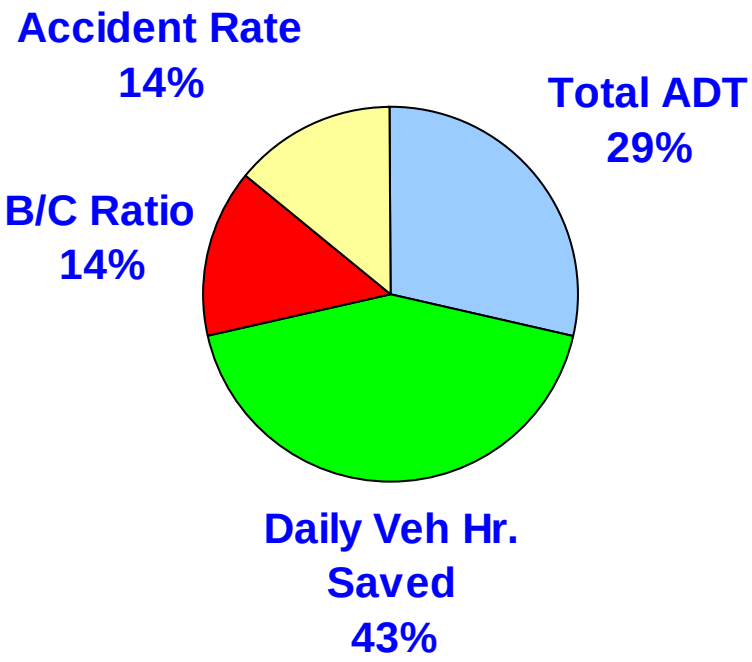
Increase Capacity

Existing Signals to Upgrade to Interchange

Objective	Factor	Max Score
Transportation Efficiency	Total ADT- Volume of traffic on a daily average for both mainline and arterial	20
	Daily Vehicle Hours Saved - Estimate based on travel time savings per vehicle	30
	Benefit Cost Ratio - Total user cost benefit from delay savings divided by the net cost of the interchange after local participation	10
Safety	Accident Rate - 3 year average of total accidents per million vehicles traversing intersection	10
	Total Possible Points	70

Increase Capacity

Ranking Factors Percent Weight
(Existing Signal to Interchange Projects)



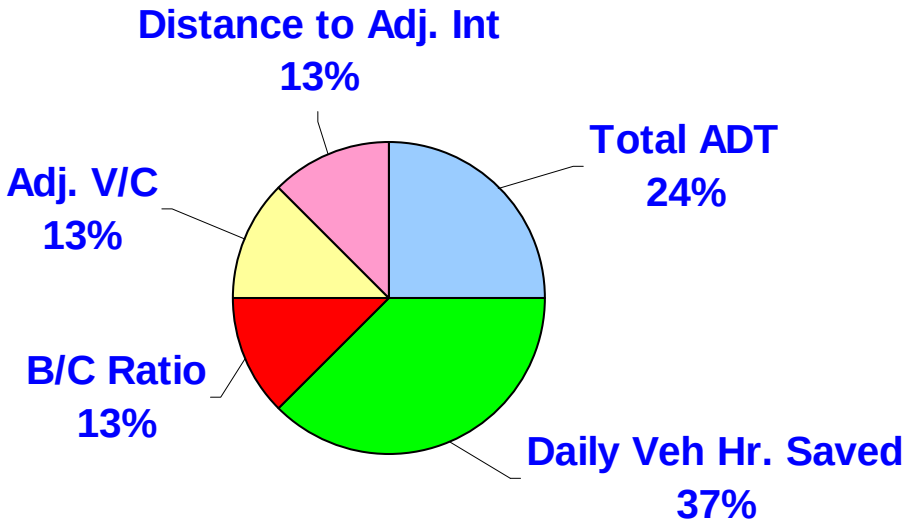
Increase Capacity

New Interchanges on Existing Highways

Objective	Factor	Max Score
Transportation Efficiency	Total Ramp Daily Traffic- Total Estimated ADT for all 4 Ramps	20
	Daily Vehicle Hours Saved – Estimate based on travel time savings using existing transportation system	30
	Benefit Cost Ratio – Total user cost benefit from delay savings divided by the net cost of the interchange after local participation	15
	Adjacent Interchange V/C – Measures the effect on adjacent interchange	10
	Distance to Adjacent Interchanges – Addresses spacing and accessibility issues	5
	Total Possible Points	80

Ranking Factors Percent Weight

(New Interchange on Existing Highway Projects)



Increase Capacity

Other Types of Interchanges

3. New Interchanges to be Considered as part of a Major Corridor Reconstruction
   - Prioritized as part of Corridor
4. Re-Construction of Existing Interchanges
   - Evaluated on a case by case basis