

Systems Planning & Programming Asset Management Division

"taking care of what we have"

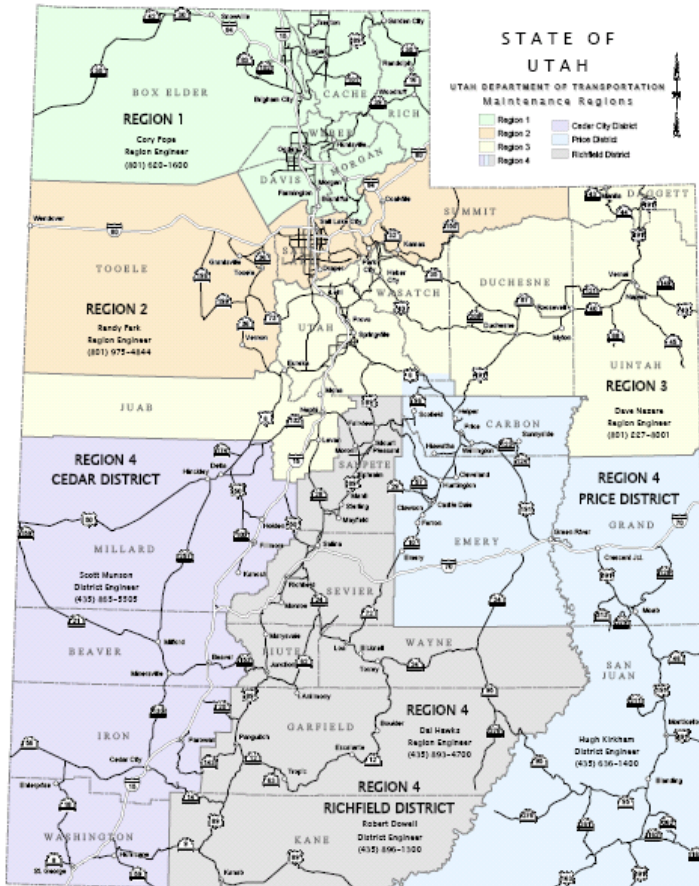
It's a Journey.....

Ahmad Jaber
Systems Planning & Programming



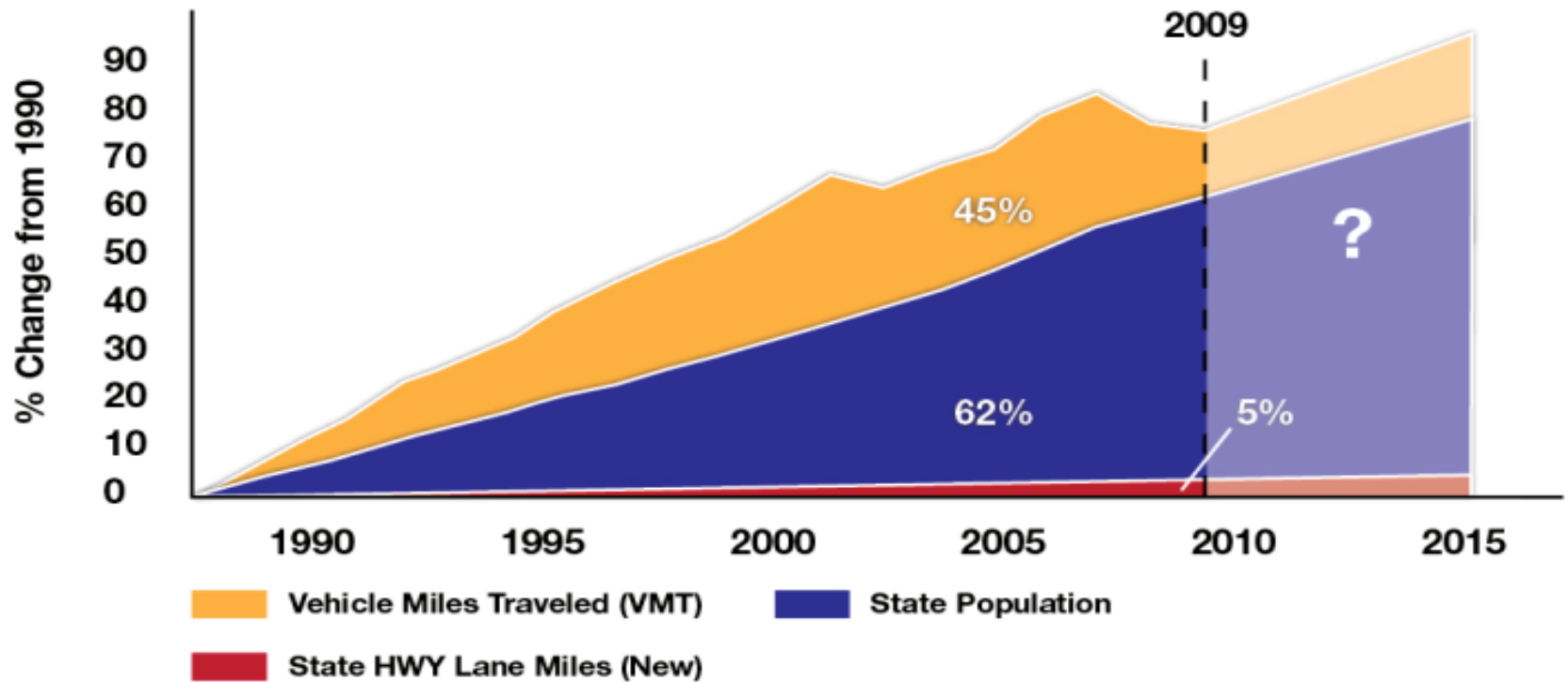
WASHTO Annual Meeting
July 14, 2010

- **Overview**
- **Assets**
 - Pavements, Bridges, Culverts, MSE Walls
- **Measures**
 - Condition, Trends
- **GIS - Graphical Interface**



- Population 2,800,000
- Land Area: 84,900 sq miles (11th Largest State)
- 1640 UDOT Employees
- 5840 Miles (13% of State)
- 16,250 Lane-Miles

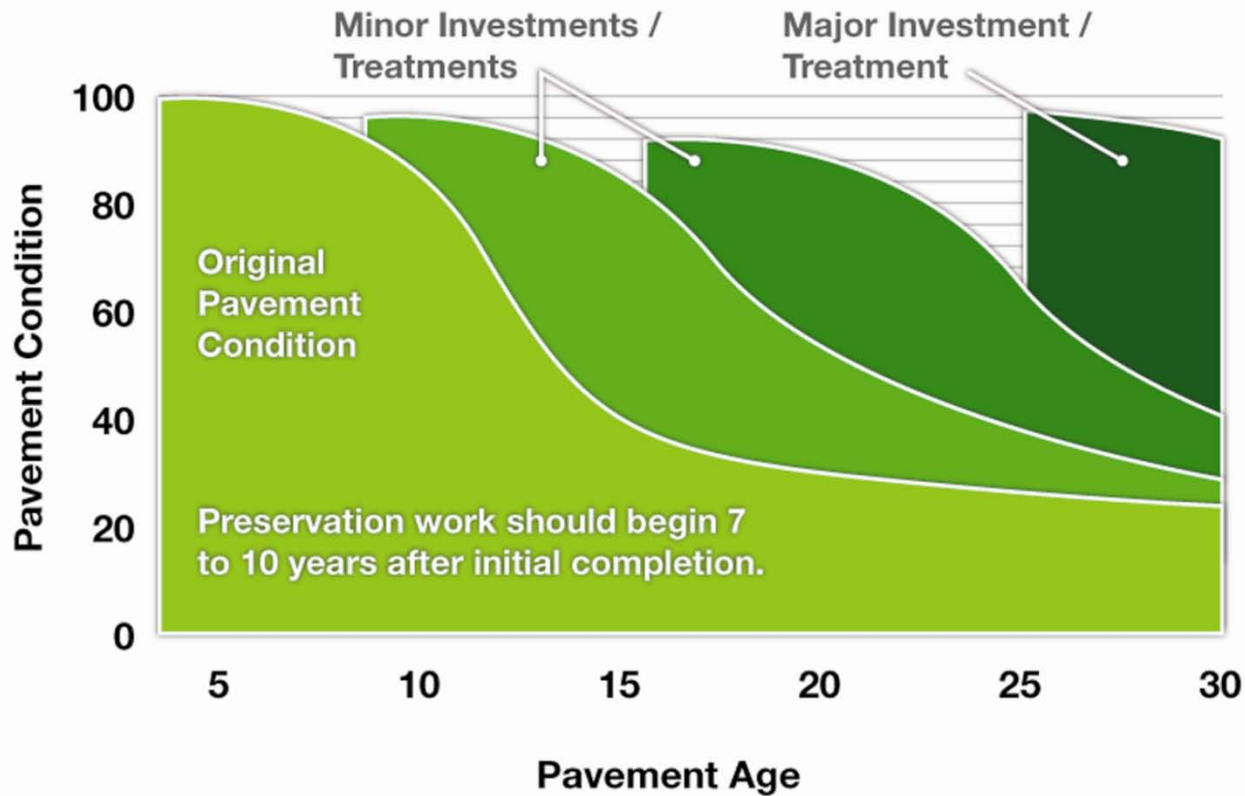
Utah Statewide Growth Trends (1990-2015)



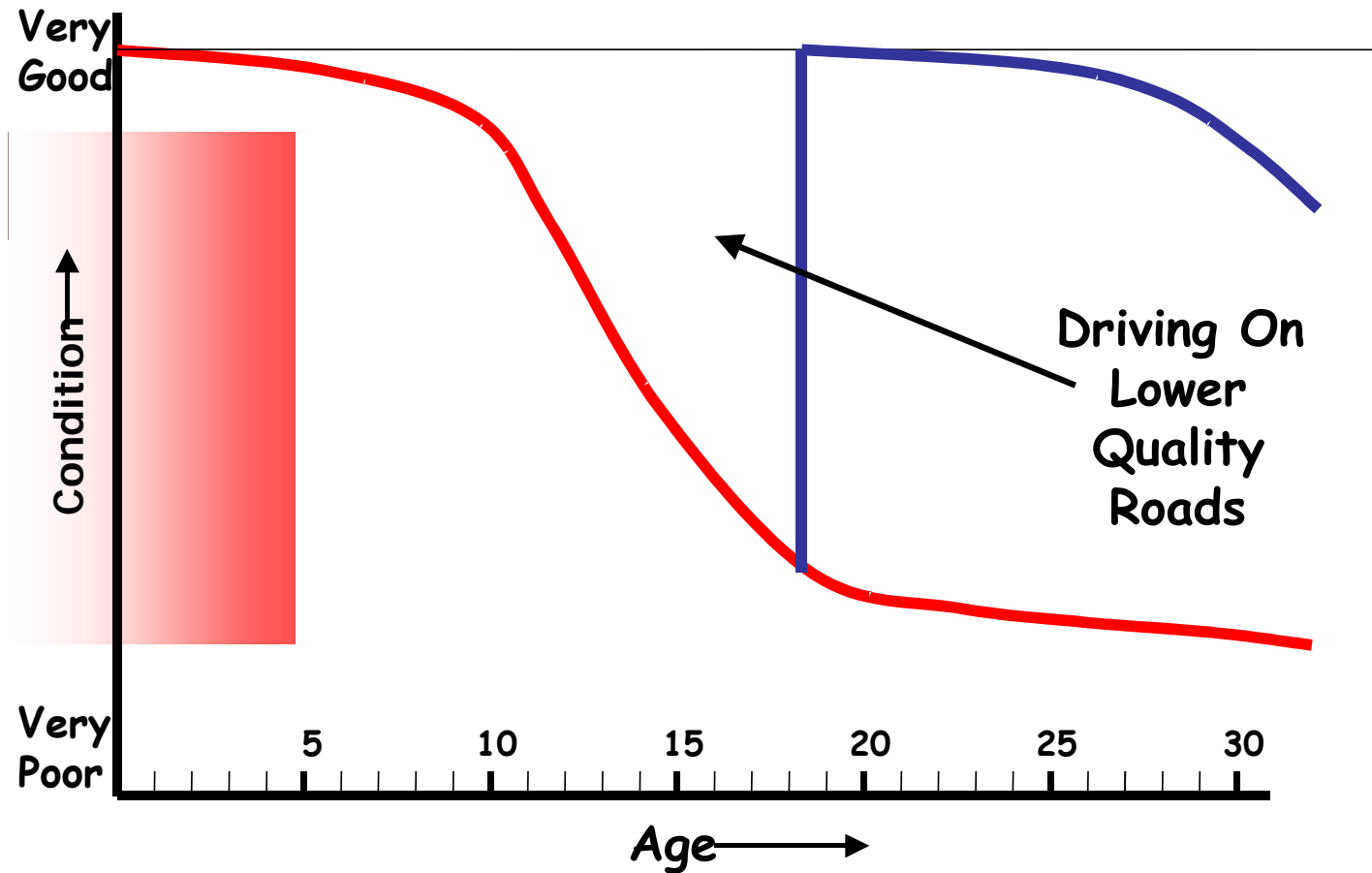
“The Final Four”

- **Take Care of What We Have**
- **Make the System Work Better**
- **Improve Safety**
- **Increase Capacity**

30 Year Pavement Performance

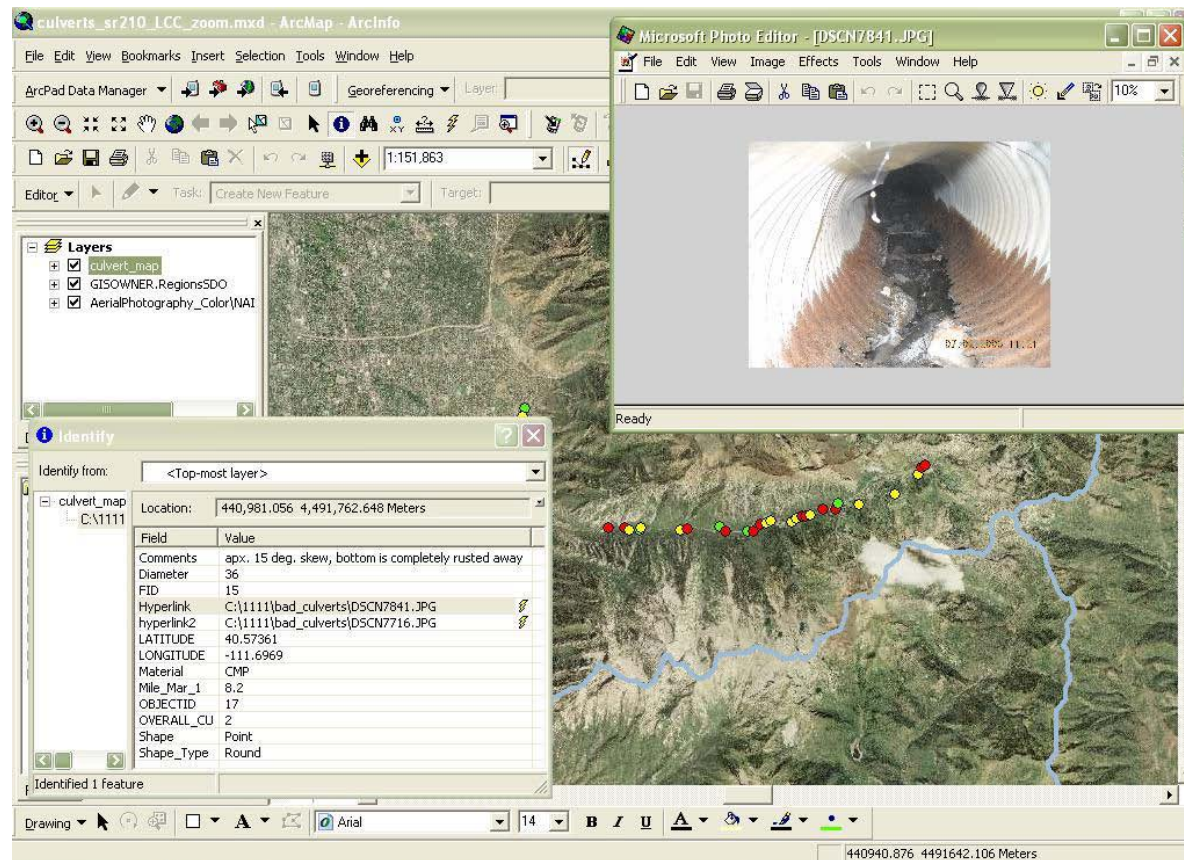


"Bad Roads Cost More"



1. Inventory
2. Condition Assessment
3. Targets
4. Deterioration Curves
5. Maintenance Strategies
6. Cross Asset Optimization
7. Projects

- Inventory is the First Step in Asset Management



- Inventory Completed
- Condition Determined
- Next Phase
 - Establishment of Targets
 - Integrate with Department's Asset Optimization Database



- Inventory Completed Every Two Years
- Condition Assessment Determined at Element Level

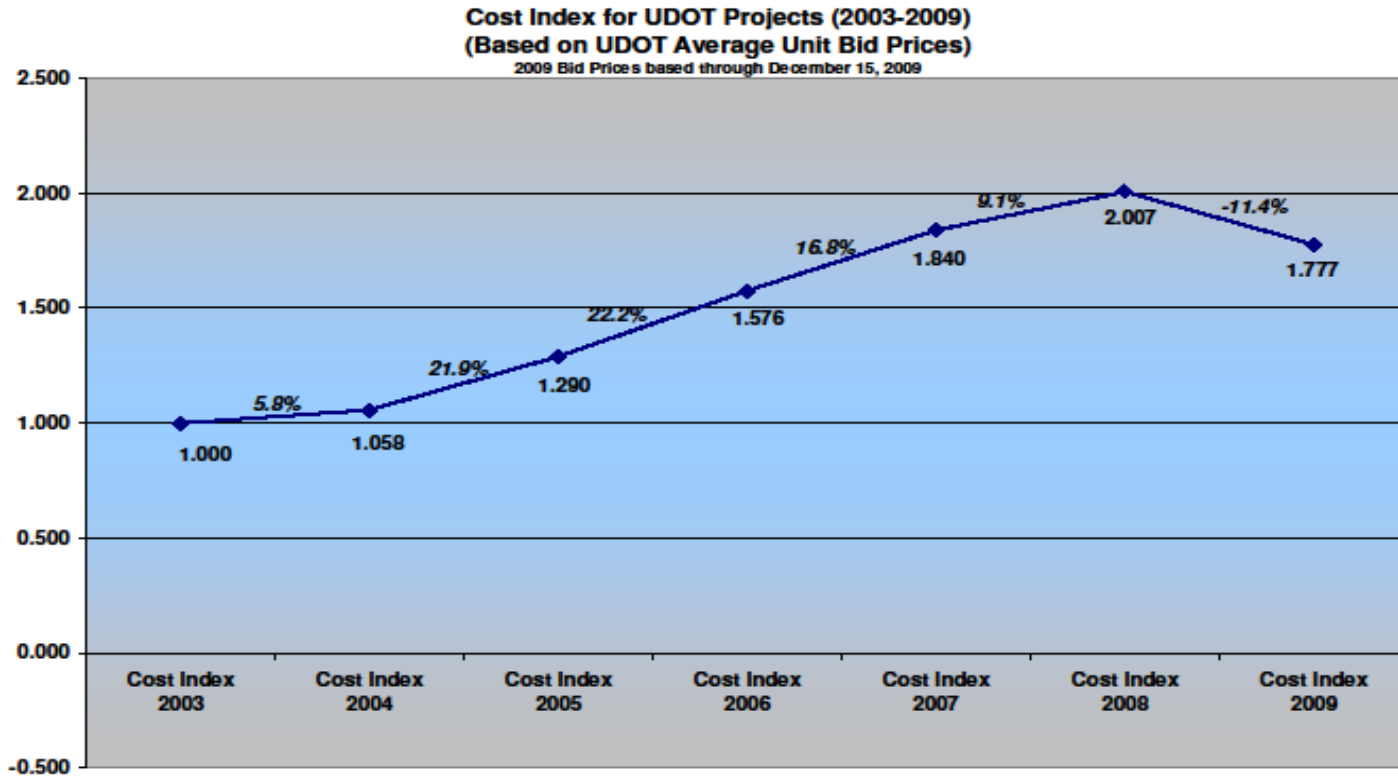


UDOT Strategic Goals

- Pavements that are in good condition today can be maintained by an appropriate mix of maintenance and preservation treatments that will maximize the system Overall Condition Index (OCI) and prolong the pavement life.



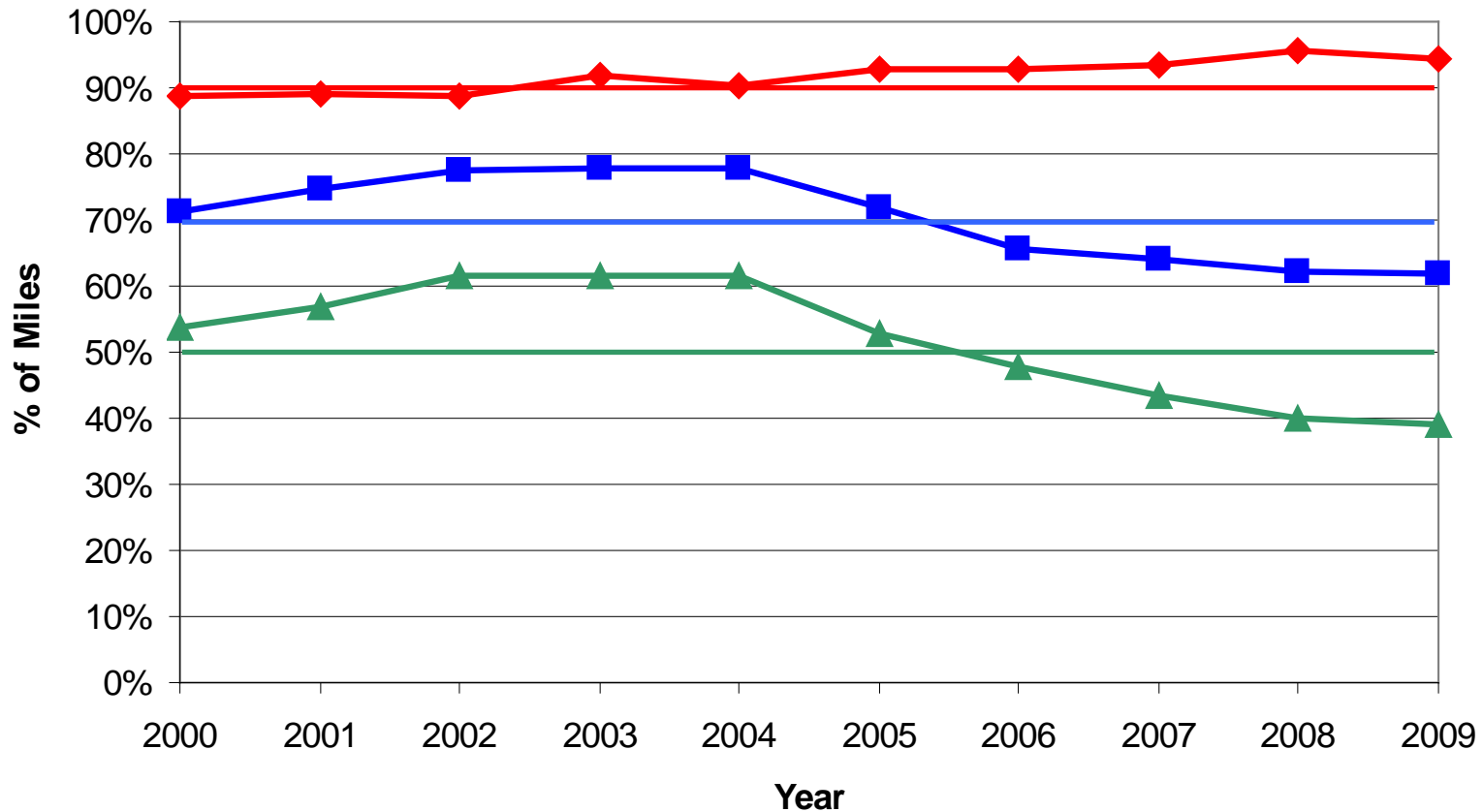
Construction Cost Index



Pavement System Health

Statewide Pavement Condition

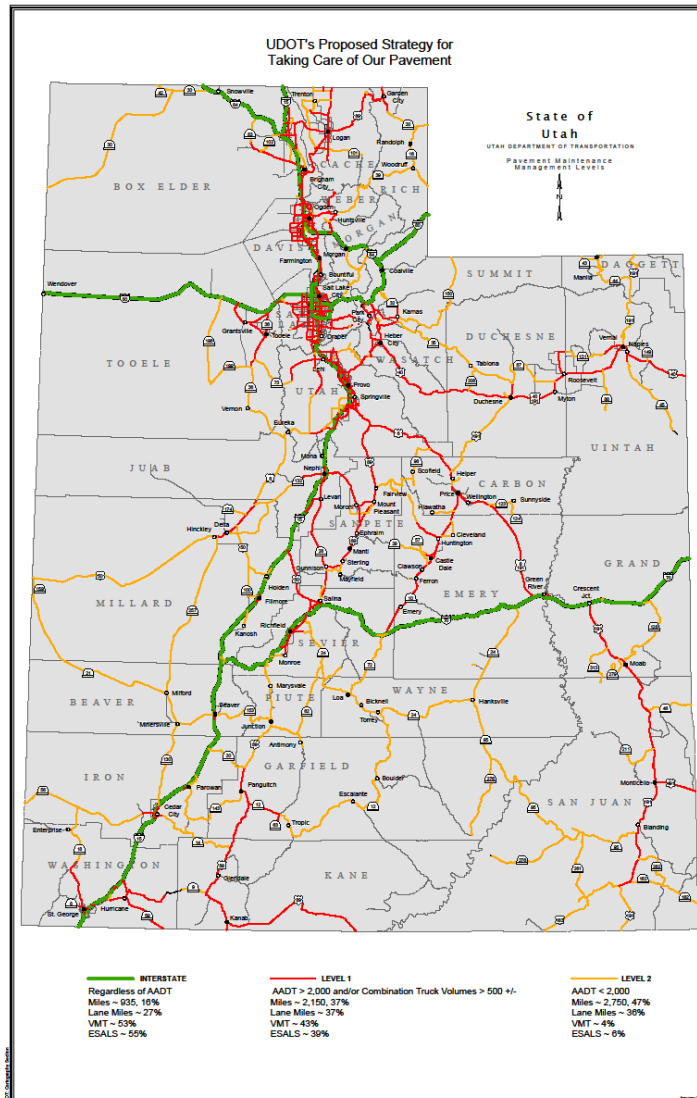
% of miles Fair or Better



based on "Half Car" IRI and Historical Ride Index

—◆— Interstate —■— Arterial —▲— Collector

Maintenance Management Levels



Interstate

Regardless of AADT

Miles ~ 935, 16%

Lane Miles ~ 27%

VMT ~ 53%

Combo Truck VMT ~ 63%

Level 1

AADT > 2,000 and/or Truck Volumes > 500

Miles ~ 2,150, 37%

Lane Miles ~ 43%

VMT ~ 43%

Combo Truck VMT ~ 32%

Level 2

AADT < 2,000

Miles ~ 2,750, 47%

Lane Miles ~ 36%

VMT ~ 4%

Combo Truck VMT ~ 5%

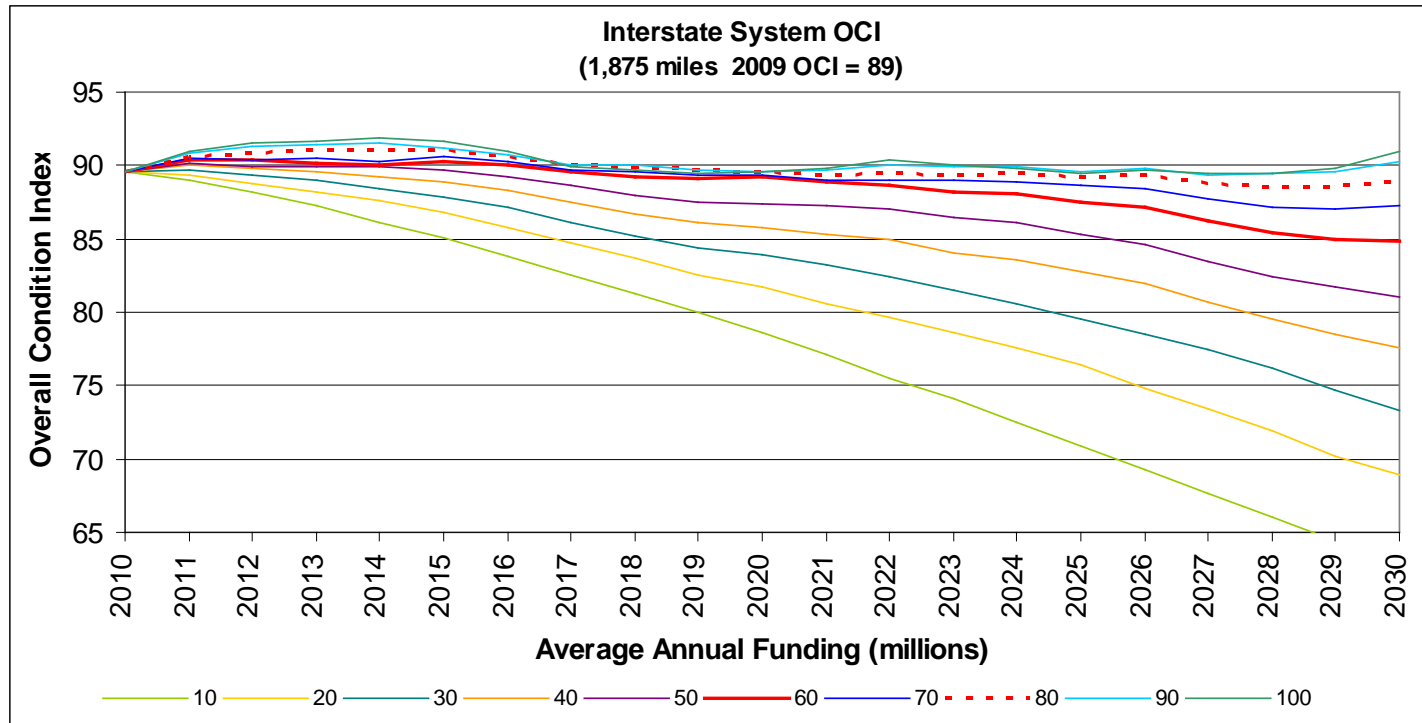
Total Funding Needs

		2011	2014
Pavement	Interstate & Level 1 Preventative Maintenance	79	60
	Interstate & Level 1 Major Rehab. And Reconstruction	Programmed	180
	Level 2 Maintenance	16	18
Bridge	Preventative Maintenance	25	28
	Rehab. And Reconstruction	Programmed	58
Total Funding Needs (Millions of \$'s)		120	344

Red = Needs

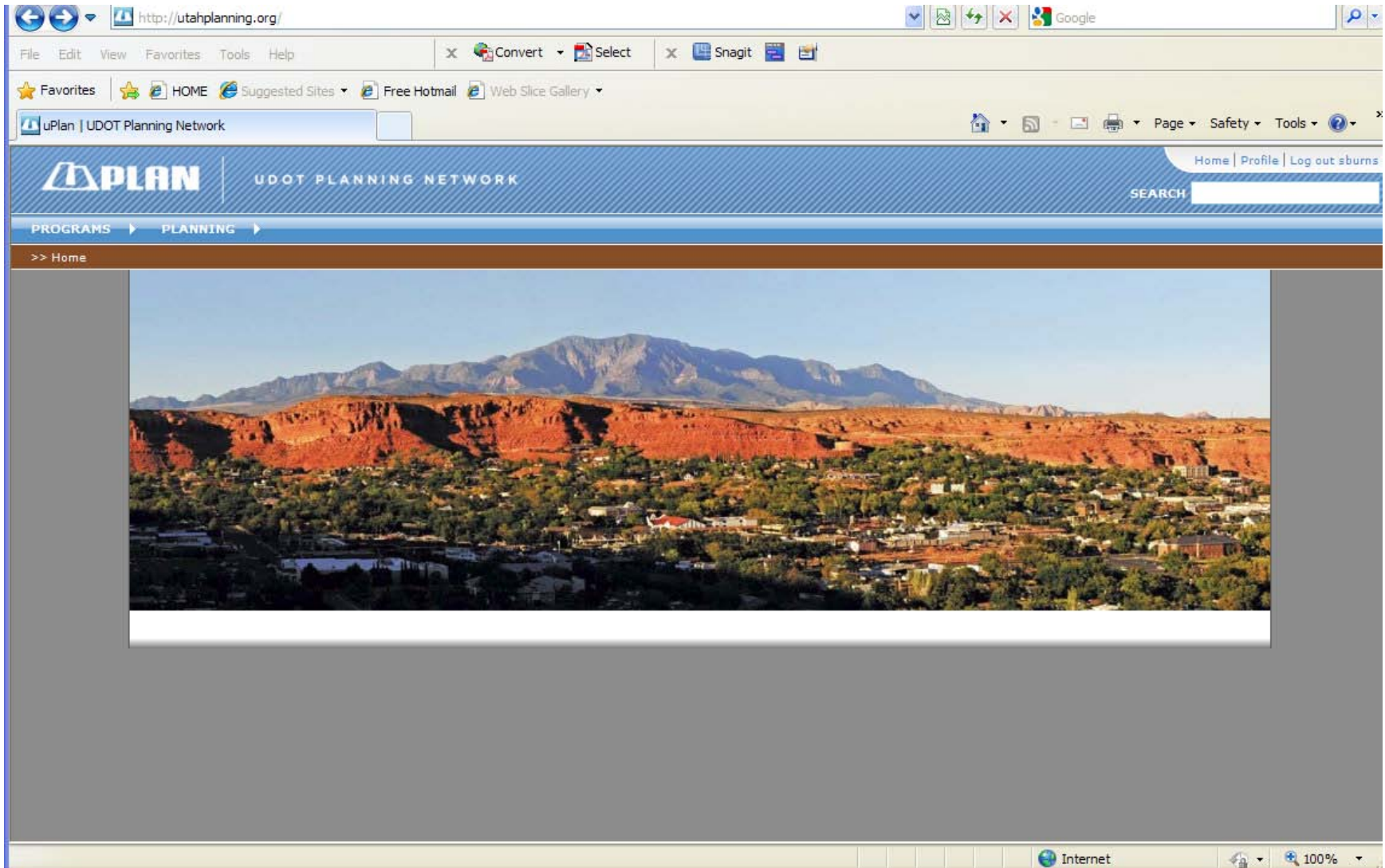
Blue = Estimate of Total Available Funds

Diminishing Marginal Returns



The level of funding to obtain the optimal condition level (point of diminishing marginal return) was found to be \$60 Million for the Interstate (increasing to \$80 million), \$50 million for the Level 1 NHS, \$60 Million for the Level 1 non-NHS, and \$90 million for the Level 2 system, for a total of \$260 to \$280 Million per year.

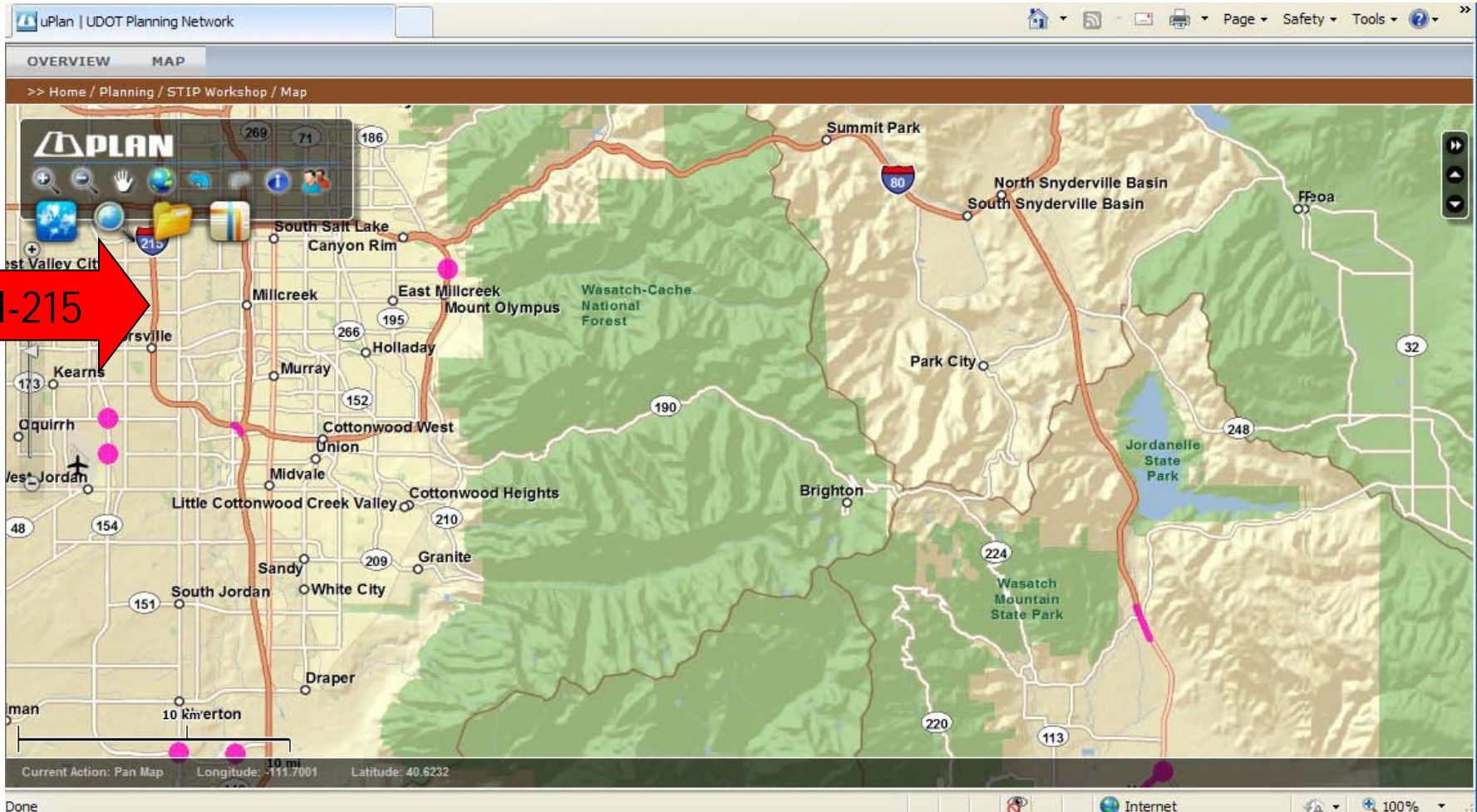
UPlan – UDOT's GIS Graphical Interface



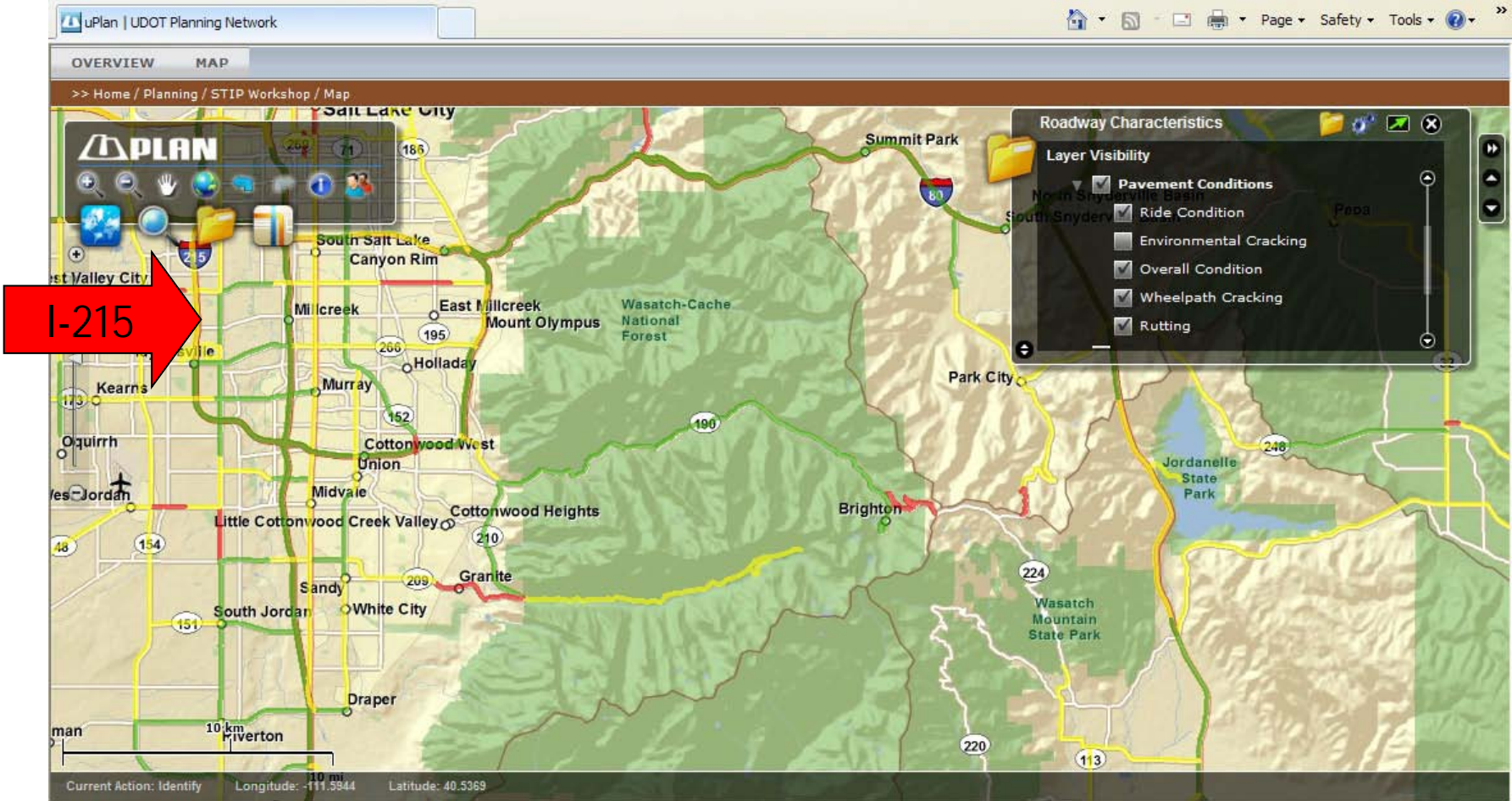
Northern Utah

The image shows a screenshot of a GIS application interface. The main map area displays a topographic map of Northern Utah, including the Great Salt Lake and major cities like Salt Lake City, Provo, and Ogden. A toolbar in the top-left corner contains several icons for map navigation and data management. Labels with arrows point to these icons: 'Pan/Min/Max View' points to the pan icon, 'Road View' points to the globe icon, 'Identification' points to the magnifying glass icon, and 'Folders' points to the folder icon. A scale bar at the bottom left shows 50 miles and 100 kilometers. The status bar at the bottom displays 'Current Action: Pan Map', 'Longitude: -113.5887', and 'Latitude: 39.8113'. The application title 'PLAN' is visible in the top-left corner of the map area.

Salt Lake Area – I-215 Belt Route



Pavement Condition



I-215 Pavement Condition Values

The screenshot shows the uPlan software interface for the UDOT Planning Network. The main map displays a geographic area around Salt Lake City, Utah, with various road segments highlighted in red and orange. Several data windows are open over the map:

- Ride Condition** window (top left):

Attributes	Values
Faulting	Good
JTSP	91.2
JointCond	Good
MILES	2.004
MML_	Interstate
NHS_	Yes
OBJECTID	67
OCI	78.3
Original Data File Name	09PFES_SectionCondition.shp
Over_Cond	Fair
RIDE	79.2
- Roadway Characteristics** window (top right):
 - Layer Visibility
 - Roadway Characteristics
 - UDOT Mileposts (checked)
 - Safety (unchecked)
 - Pavement Conditions
 - Ride Condition (checked)
 - Environmental Cracking (unchecked)
 - Overall Condition (checked)
 - Wheelpath Cracking (unchecked)
 - Rutting (unchecked)
 - Freight Routes (unchecked)
 - Combo Truck (unchecked)

- Identify** window (bottom right):

2 results found.

- 1 Ride Condition
- 1 Ride Condition

The interface includes a navigation toolbar on the left, a menu bar at the top (OVERVIEW, MAP, COMMENTS, DOWNLOADS), and a status bar at the bottom showing coordinates (Longitude: -112.0098, Latitude: 40.5182) and a scale of 100%.

Pavement Rehab Projects

The screenshot displays a GIS interface for planning pavement rehabilitation projects. The main map shows the Salt Lake Valley region with roads color-coded by project status. A toolbar on the left includes a 'PLAN' logo and navigation tools. The top navigation bar shows the path: >> Home / Planning / STIP Workshop / Map.

Legend (Right Panel):

- Ride Condition
- Environmental Cracking
- Overall Condition
- Wheelpath Cracking
- Rutting

Identify Panel (Middle Right):

4 results found.

- All_Other_Years
- All_Other_Years
- Ride Condition

STIP Workshop Panel (Bottom Right):

Layer Visibility

- Capacity for Consideration
- Early Action Projects
- High Priority Corridors
- Pavement
- Purple Book
- Orange Book

Current Action: Identify Longitude: -111.6053 Latitude: 40.5285

I-215 Pavement Rehab Project

The screenshot displays a GIS application interface with a map of the Salt Lake Valley area. The map shows various roads, including I-215, and several data overlays. A 'PLAN' toolbar is visible in the top left. The interface includes several data windows and panels:

- Attributes Table:** A table showing details for 'All Other Years'.
- Identify Panel:** Shows 4 results found, including 'All Other Years' and 'Ride Condition'.
- STIP Workshop Panel:** Shows layer visibility settings for 'Capacity for Consideration', 'Early Action Projects', 'High Priority Corridors', 'Pavement', 'Purple Book', and 'Orange Book'.
- Legend Panel:** Shows checkboxes for 'Ride Condition', 'Environmental Cracking', 'Overall Condition', 'Wheelpath Cracking', and 'Rutting'.

Attributes	Values
Data Scale	1:1000
Length	2
County	Salt Lake
Data Source	UDOT
Original Data File Name	Purple_Book_413
Region	2
Programmed Year	0
Project Location	I-215(west) NB: 4700 South to 3500 South
Estimate	\$23,400,000.00
Ending Milepost	17.5
Concept	Road - Reconstruction Concrete Pavement
Route	0215P
Beginning Milepost	15.5

Current Action: Identify Longitude: -111.5614 Latitude: 40.5390

I-215 Long Range Plan

The screenshot displays the uPlan web application interface. The main map shows the Salt Lake City region with various transportation planning overlays. A red line highlights a specific project segment. Several panels are open over the map:

- WFRC RTP (2007) Attributes Table:**

Attributes	Values
Future Functional Class	Freeway
Project Name	Phase 1: I-215: 4700 South to SR-201
Future Right-of-Way Width	300
Total Length (miles)	4
Future Number of Travel Lanes	8
Current Number of Travel Lanes	6
Current Right-of-Way Width (feet)	300
Improvement Type	New Construction

- 2007 Regional Transportation Plans Layer Visibility:** Shows a list of RTP projects with checkboxes for visibility. The 'WFRC RTP (2007)' checkbox is checked.
- Identify Panel:** Shows '3 results found' for the current selection, including 'Ride Condition' and 'WFRC RTP (2007)'.

The interface includes a navigation menu (OVERVIEW, MAP, COMMENTS, DOWNLOADS), a breadcrumb trail (>> Home / Planning / Long-Range Plan / Map), and a status bar at the bottom showing 'Current Action: Identify', 'Longitude: -112.0276', and 'Latitude: 40.8453'.

Thank You!