

# Economic Benefits and Impacts of Utah's Unified Plan

*Prepared for:*

**Utah Mobility Coalition**

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## **GLOSSARY OF TERMS:**

**Business as Usual Scenario:** An investment scenario that assumes continuation of a current pattern of investment or expenditure.

**Business Attraction Impact:** The economic impact occurring because firms are attracted to a state or regional economy due to the addition of a desirable amenity. (Also referred to as ‘contingent development’.)

**Business Output:** The total value of goods produced and sold in the economy.

**Construction Impact:** The economic impact occurring because of government outlays made to construct or maintain a public facility.

**Cumulative Benefit:** The total long-term present value of social benefits accruing over a period of years. Cumulative benefit is the sum of all benefits for all years in a given period (in contrast to an annual benefit, which would indicate the level of impact for a single year).

**Cumulative Cost:** The total long-term present value of costs to society occurring over a period of years. Cumulative cost is the sum of all costs for all years in a given period (in contrast to an annual cost, which would indicate the level of impact for a single year).

**Cumulative Impact:** The total long-term value of impacts accruing over a period of years. Cumulative impact is the sum of all impacts for all years in a given period (in contrast to an annual impact, which would indicate the level of impact for a single year).

**Earnings:** The total money earned in wage income. Also referred to as “household income”.

**Economic Impact:** The ways in which a different pattern of spending or economic activity affect transactions leading to earnings, output, employment and value-added. Unlike benefits, impacts can result from transfers in which money is simply reallocated from one party to another.

**Expansion Benefit:** The total long-term present value of transportation cost savings in the economy that accrue from building the transportation system to a level that can support anticipated future demand and growth when compared to simply preserving the system in its current state.

**Expansion Impact:** The economic impact resulting from building the transportation system to a level that can support anticipated future demand and growth when compared to simply preserving the system in its current state.

**Expansion Investment:** Investment required to build the transportation system to a level that can support anticipated future demand and growth.

**Fiscal Impact:** The change in government revenues occurring due to the economic impacts of an action.

**Gross Domestic Product:** The total value-added in the economy (value of all goods produced and sold after the costs of labor, taxes and inputs are subtracted).

**Jobs:** The total number of people employed in the economy.

**Maintain Existing System Scenario:** An investment scenario based on the minimum requirements associated with maintaining the transportation system in 2011 conditions.

**Market Access Impact:** The economic impact occurring because of businesses becoming more productive when a larger pool of available buyers and suppliers becomes available.

**Present Value:** The discounted value of a stream of costs or revenues over a period of time.

**Preservation Benefit:** The total long-term present value of transportation cost savings that accrue from preserving the transportation system in its current condition when compared to allowing the system to naturally deteriorate.

**Preservation Impact:** The economic impact resulting from preserving the transportation system in its current condition when compared to allowing the system to naturally deteriorate.

**Preservation Investment:** Investment required to keep the transportation system in its current condition.

**Public Return on Investment:** The total increase in Gross Domestic Product (GDP) per dollar invested in an economic program or initiative, net of the effects of raising money for the program through taxes or expenditure of funds associated with implementing the program or initiative.

**Residual Value:** The value of the remaining service life that a transportation facility is found to have at the end of an analysis period.

**Social Benefit:** The overall present dollar value of savings or increased productivity from all sources associated with an action or investment. Benefits do not include transfers (transactions in which money is simply reallocated from one party to another), but only actual savings or increases in productivity for the economy as a whole. Social Benefit is also referred to as “societal benefit”.

**Transportation Efficiency Impact:** The economic impact occurring because of households or businesses saving money on transportation and spending those savings elsewhere in the economy.

**Unified Plan Scenario:** An investment scenario based on Utah’s Unified Plan.

# EXECUTIVE SUMMARY

Utah has a thirty-year plan for state transportation facilities on all modes in urban and rural areas. In rural areas, the Utah Department of Transportation (UDOT) prepares a Long Range Transportation Plan (LRP). In urban areas (50,000 or more inhabitants), the Metropolitan Planning Organizations (CACHE, WFRC, MAG, DMPO) prepare Regional Transportation Plans (RTPs). The LRP and RTPs are lists of improvement projects, developed in accordance with federal regulations and updated every four years to provide for the state's transportation needs of the future. When the UDOT LRP projects are approved for funding by the State Transportation Commission, they are moved into the Statewide Transportation Improvement Program (STIP) for design and construction.

The Unified Transportation Plan (*Unified Plan*) is a comprehensive project list that includes urban and rural transportation improvement projects from UDOT and the MPOs. The plan also includes funding to operate and maintain existing and new transportation facilities and services on all modes. This report explores the economic implications of investing in Utah's transportation system at different levels. Different investment levels considered include:

- 1) *Maintain Existing System* scenario: the investment level required to maintain the existing system (as it is today), -
- 2) *Business as Usual* scenario: the investment level supported by current revenue streams to accommodate future demand, and
- 3) *Unified Plan* scenario: the investment level recommended by the *Unified Plan*.

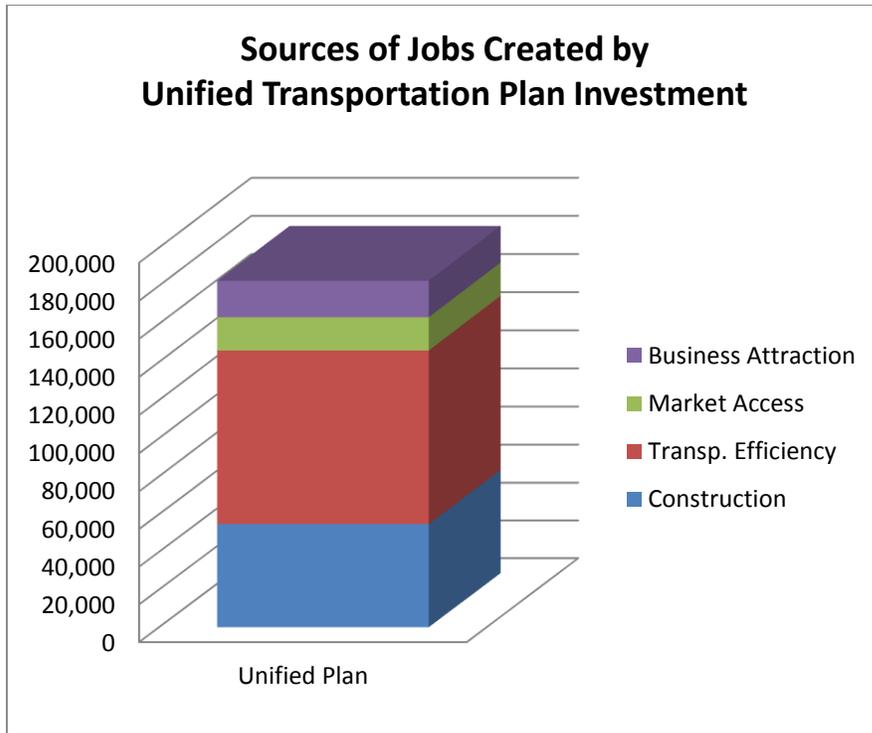
This report considers the costs that deficient transportation conditions impose on Utah's economy in dollar terms and number of jobs, as well as the potential benefits to the state's economy if future conditions can be enhanced by investing in Utah's transportation system.

Funding Utah's Unified Transportation Plan at the level of \$54.7 Billion will provide the \$18.3 Billion needed to preserve existing infrastructure and services and an additional \$36.4 Billion in expanded capacity to meet future needs. Investing in the transportation system at this level will result in nearly 183,000 new jobs<sup>1</sup> in Utah's economy in 2040 in comparison to a 2040 in which no investment is made in the transportation system. These jobs include not only nearly 55,000 construction jobs, but also over 91,000 jobs created by private savings on congestion, safety, wear and tear from deteriorating pavements and other transportation efficiency problems; over 17,000 jobs created by enhanced access to markets for Utah firms; and over 19,000 jobs created by new businesses attracted to Utah because of improved transportation conditions resulting from the plan. Figure ES-1 shows the magnitude of jobs created by these outcomes of investing in the *Unified Plan*.

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<sup>1</sup> In this report jobs are rounded to the nearest thousand when reported in text, but are reported with the precision as modeled (to the job) in tables and figures to support intermediate calculations.

Figure ES-1: Sources of Job Creation from investing in Utah’s *Unified Plan*



Source: EDR Group/TREDIS Software

The state’s public return on investment (ROI) is understood as the net growth in the state’s gross domestic product (GDP) per dollar of investment net of the effects of taxes or state spending.<sup>2</sup> By inducing GDP Growth (net of taxes or state spending) of \$106.5 Billion for a \$54.7 Billion investment in the 30-year period from 2011 to 2040, fully funding Utah’s investment in the *Unified Plan* is expected to achieve a ROI of 1.94.<sup>3</sup>

Utah’s transportation system is a critical asset to the state, carrying over 3 Billion vehicle trips, over 26 Billion vehicle miles of travel, and over 964 Million vehicle hours of travel in 2010.<sup>4</sup> According to the US Department of Transportation Freight Analysis Framework, in 2010 Utah’s transportation system is estimated to have carried over \$185 Billion worth of goods by all modes combined. According to Minnesota Implan Group, It is estimated that in 2009<sup>5</sup>, over 208,000 of Utah’s employees were involved in the production of goods

<sup>2</sup> The GDP effects of state construction or operation and maintenance outlays are not considered part of ROI because state spending is understood to be supported from taxes or fees taken from elsewhere in the economy.

<sup>3</sup> Total GDP Growth (\$183.6B) – Construction Related GDP Growth (\$77.1B)/State Investment (\$54.7B) = ROI (1.94)

<sup>4</sup> Based on FHWA Federal Highway Statistics 2010 VMT estimate imputed on a combination of available travel models from UDOT and Utah MPOs.

<sup>5</sup> IMPLAN has 2009 data; FAF has 2010 data, accounting for the difference in years.

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exported from Utah on the state's transportation system, 672,000 workers were involved in producing goods with materials shipped into Utah on the state's transportation system. Clearly the ongoing condition and performance of the transportation system is of vital importance to the state's long-term economic success.

As shown in Table ES-1, when the state invests in the transportation system, Utah's households and businesses save money on private transportation costs. If the state makes no investment in the transportation system from 2011 to 2040, transportation deficiencies will cost Utah's households and businesses over \$145 Billion in this thirty-year period.

**Table ES-1: Public Outlays in Transportation and Private Sector Transportation Costs**

<i>Investment Choices</i>	<b>Public Outlays for Transportation Improvement</b>	<b>Private Costs of System Deficiencies</b>
<i>No Investment in Transportation</i>	0	\$145.3 Billion
<i>Maintain Existing System</i>	\$18.3 Billion	\$98.9 Billion
<i>Unified Plan</i>	\$54.7 Billion	\$60.5 Billion

Source: EDR Group/TREDIS Software

Simply maintaining the transportation system in today's condition will cost the state \$18.3 Billion in public outlays by 2040. Investing at the \$18.3 Billion preservation level is expected to reduce Utah's private transportation cost from \$145.3 Billion to \$98.9 Billion (a savings of \$46.3 Billion for an \$18.3 Billion investment). Further investing in the transportation system to a level of \$54.7 Billion consistent with the *Unified Plan* would reduce Utah's private transportation cost to \$60.5 Billion, a savings of \$84.8 Billion.

For the cumulative 30-year period from 2011 to 2040, Utah's policy makers can effectively cut private sector transportation costs by nearly sixty percent (from \$145.3 Billion to \$60.5 Billion) by fully investing in Utah's *Unified Plan*.

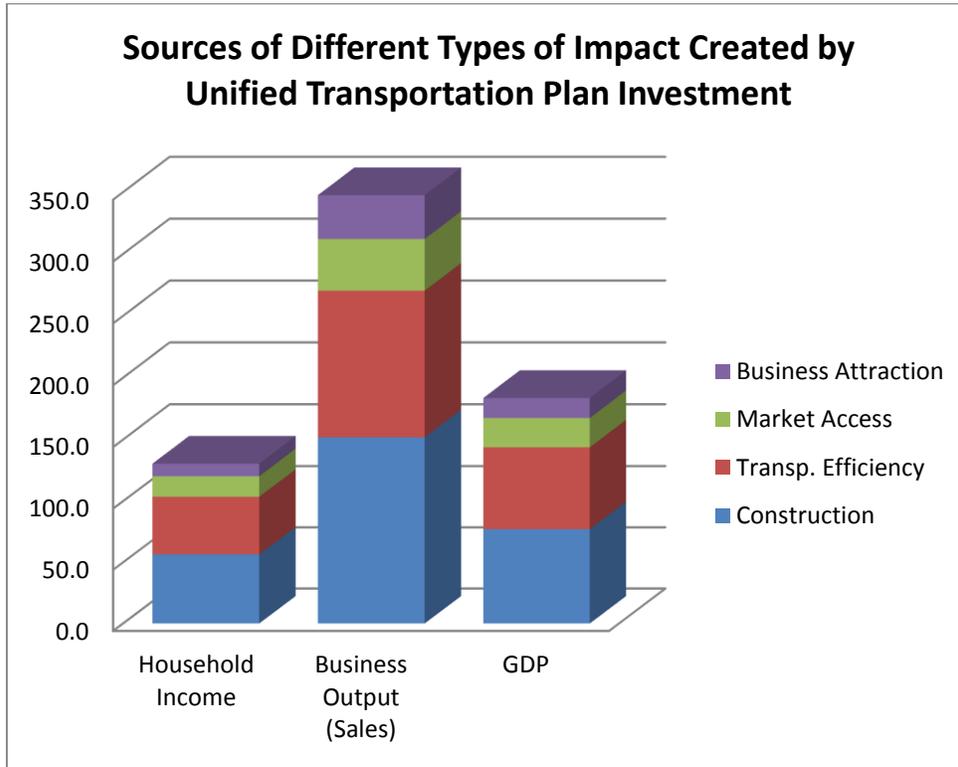
Most of the savings to system users will occur because of adequately maintained pavements, bridges and transit lines, reduced congestion, more reliable deliveries and the increased productivity that businesses can enjoy when the transportation system works as efficiently as possible.

These cost savings, combined with the business attraction and construction effects of the improved transportation system, will enable Utah's households and businesses to both invest and spend more in Utah's economy. The impacts of households and businesses investing and spending the proceeds of the improved transportation system can create over 182,000 jobs by 2040, \$130.5 Billion in cumulative household income, \$347.5 Billion in cumulative business output (sales), and \$183.6 Billion in cumulative GDP by 2040. As with the jobs impact, nearly half of these impacts will be the result of private sector savings and the improved business environment, with the overall impact of construction spending accounting for less than 30 percent of the overall impact of the program.

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Investing in the *Unified Plan* will enable ongoing growth and expansion of the state’s economy, creating approximately \$8.1 Billion in state and local government revenues and \$14.1 Billion in federal government revenues at current tax rates. Figure ES-2 and Table ES-2 show the overall nature and magnitude of impacts associated with full investment in the *Unified Plan* in comparison to failure to fund the transportation system.

**Figure ES-2: Impacts from Utah’s Transportation Investment**



Source: EDR Group/TREDIS Software

**Table ES-2: Economic Impacts of Transportation Investment at Different Levels**

**Comparative Outcomes of Investment Levels in UT Transportation System**

Investment Levels	Investment In Unified Plan		Effects on Utah's Economy				
	\$ Invested in Transportation (\$B)	\$ Invested in System Expansion (\$B)	\$ Private Sector Savings (\$B)	Jobs in 2040	Household Income (\$B) (cumulative to 2040)	Business Output (\$B) (cumulative to 2040)	GDP (\$B) (Cumulative to 2040)
<i>Maintain Existing System</i>	\$18.3	\$0.0	\$46.3	49,900	\$25.8	\$64.8	\$36.4
<i>Unified Plan</i>	\$54.7	\$36.4	\$84.8	182,600	\$130.5	\$347.5	\$183.6

Source: EDRG with TREDIS Software

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Overall, the dollars the state of Utah invests in the transportation improvements proposed in the *Unified Plan* bring additional revenue and wages to Utah's households and businesses at levels substantially above the dollars invested by the state. While the state's outlays in the infrastructure and services envisioned by the *Unified Plan* can be expected to save Utah's private sector more dollars than the state would invest in the improvements, the direct savings are only a small share of the overall payoffs to Utah's private economy. The greatest payoffs to the economy are likely to occur in the additional output that Utah businesses can produce when the congestion and reliability costs of travel are reduced. This output creates jobs and wages for Utah workers, and ultimately leads to a substantially larger economy than would occur if the system were left in the condition as it stood in 2011.

# 1 UTAH'S ECONOMIC BASE & ROLE OF TRANSPORTATION

To understand the importance of investing in Utah's transportation system, it is helpful to understand how Utah's economy uses the transportation system to produce goods and services, employ workers, and trade with the nation as a whole.<sup>6</sup> This chapter explores Utah's economic base, and the ways in which Utah's current economy depends on the infrastructure maintained and improved as envisioned by the *Unified Plan*.

## 1.1 Utah's Economic Base

Utah's economic base is defined as the group of industries in which Utah's economy 'specializes.' These industries do not account for all of Utah's exports, but account for exports from those industries in which Utah has a clear competitive advantage with Utah firms consistently exporting more than is consumed within the state. Utah consistently exports the products of its "basic" industries to other states and other nations around the world. Utah's "basic" industries include sectors with physical products (such as mining, primary metal manufacturing, food products, and nonmetallic mineral products), as well as service sectors (such as educational services, health care, and financial services). The transportation system is especially important for Utah's "basic" industries, because if passenger and freight transportation networks are not available to transport people and goods to and from out-of-state customers and markets, these industries are unable to sell their output, and unable to bring the associated revenue into the state from the national and global economies.

Overall, in 2009, Utah "basic" industries exported nearly \$18 Billion worth of goods and services.<sup>7</sup> Production of these \$18 Billion worth of "basic" exports accounted for over 267,000 jobs in the state of Utah. These jobs depend directly on Utah's transportation system to access available markets elsewhere. Economic exports include both goods (such as petroleum and coal products) that are shipped from the state on the freight system as well as services (such as educational or financial services) in which a Utah firm provides a service for an out of state customer which may involve communication networks or personal travel into and out of the state. Table 1 summarizes Utah's top exporting industries in 2009 and the associated output and jobs in Utah's economy related to these exports.

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<sup>6</sup> The current analysis focuses only on Utah's domestic trade with the US; however it is understood that in addition to the domestic use described here, Utah's transportation system does carry a significant measure of Mexican and Canadian traffic.

<sup>7</sup> All data on basic industry transactions are based on Minnesota Implan Group (MIG) input-output tables, which are based on BEA statistics as presented in EDR Group's TREDIS system.

Table 1: Utah’s Top Exporting Industries

Basic Industries and Utah's Export Economy			
Industry	Value of Exports (\$M)	Jobs Per \$ of Output	Total Jobs Supported by Net Basic Industry Exports
Educational Services	\$2,251	24.78	55,771
Petroleum & Coal Products	\$1,916	2.57	4,916
Health Care & Social Services	\$1,710	21.23	36,301
Primary Metal Manufacturing	\$1,659	6.80	11,288
Food Products	\$1,519	9.70	14,728
Mining & Support Activities	\$1,356	8.63	11,705
Transportation	\$1,101	14.55	16,018
Monetary, Financial, & Credit Activity	\$1,066	16.12	17,178
Miscellaneous Manufacturing	\$775	10.76	8,341
Rental & Leasing Services	\$374	13.88	5,197
Other Export Industries	\$4,243	34.60	85,926
<b>Total Export Industries</b>	<b>\$17,970</b>	<b>24.73</b>	<b>267,369</b>

Source: EDRG with TREDIS Software

## 1.2 Supply Chains and Dependence on Freight

The nearly \$18 Billion in direct exports from “basic” exporting industries in Utah’s economy brings revenue directly into the state, however the actual economic dependence on these exports goes beyond the goods and services directly exported. Utah-based suppliers of firms making exported goods and services are also indirectly dependent on Utah’s ability to export goods using the transportation system. This is especially true of industries that make and use freight commodities that move by truck. For example, in order to produce the \$1.9 Billion in petroleum and coal products shown in Table 1, the petroleum and coal industry relies on the ability to get raw materials to production sites in Utah, and the production of these products creates significant jobs, income, and output for firms in Utah that supply Utah’s direct exporters.

### Supply Chain Dependence on Utah’s Highway System

When all second order suppliers of exporters moving goods by truck are taken into account, more than \$62 Billion in output in Utah’s economy is attributable to the ability of firms to export goods from Utah by truck. Producing these truck-dependent exports employs over

280,000 workers in Utah’s economy<sup>8</sup>. Utah also depends on the highway system to import the inputs needed from out of state to produce goods and services. Utah firms produce over \$52.1 Billion in output using inputs brought *into* the state by truck, and this production employs over 672,000 workers in Utah’s economy. In addition to inbound and outbound truck movements, Utah’s economy relies on goods moved by truck *entirely within the state* to produce over \$57.4 Billion worth of output and employing over 371,000 workers.

It should be noted that totals for the annual dependence on truck imports, exports, and internal traffic are not additive, because the same worker or firm may produce imports, exports, and goods for internal consumption within the same year.

### 1.3 Freight Modes and Trading Partners

According to the USDOT *Freight Analysis Framework*, over 201.7 Million tons of freight moved on Utah’s transportation system in 2010, with a value of over \$185 Billion. The improvements in the *Unified Plan* focus primarily on highway and passenger transit systems. It should be noted, however, that Utah’s freight rail and air cargo systems also support a considerable amount of the state’s economic activity. Non-highway modes are estimated to have carried 37 percent of Utah’s tonnage and 31 percent of the value of goods moved on Utah’s transportation system in 2010. For both inbound and outbound tonnage, the majority of Utah’s freight is fuels, including coal, petroleum, gasoline and other metallic and nonmetallic minerals. Table 2, Figure 1, and Figure 2 show the modal distribution of freight on Utah’s transportation system.

**Table 2: Freight Modes in Utah, 2010**

**Utah Freight - BY MODE (2010)**

MODE	Tons (Million)	Tonnage %	Value (In Million 2010\$)	Value %
Truck	127.6	63%	127,969	69%
Rail	39.3	19%	11,106	6%
Air (include truck-air)	<.1	0%	2,166	1%
Multiple modes & mail	7.8	4%	30,278	16%
Pipeline	24.8	12%	10,887	6%
Other and unknown	2.2	1%	3,577	2%
<b>TOTAL: All Freight</b>	<b>201.7</b>	<b>100%</b>	<b>185,983</b>	<b>100%</b>

Source: USDOT *Freight Analysis Framework (FAF)*, 2010

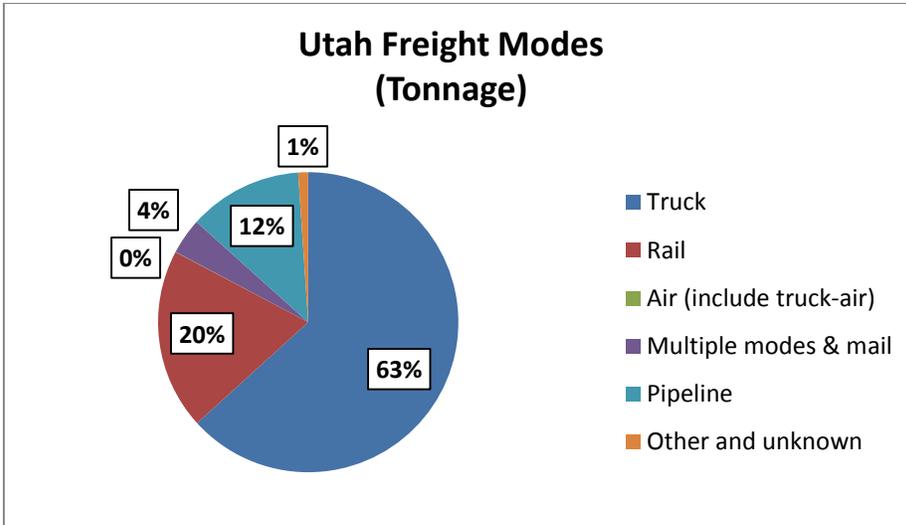
Trucking on Utah’s highways carries the majority of both the tonnage and value supporting the state’s economy. The volume of tonnage and value on the highway system points to

<sup>8</sup> Source: EDRG/TREDIS using USDOT Freight Analysis Framework and IMPLAN input-output tables.

the degree to which Utah’s businesses can be affected by the type of travel time and reliability savings on the highway system afforded by investment in the *Unified Plan*.

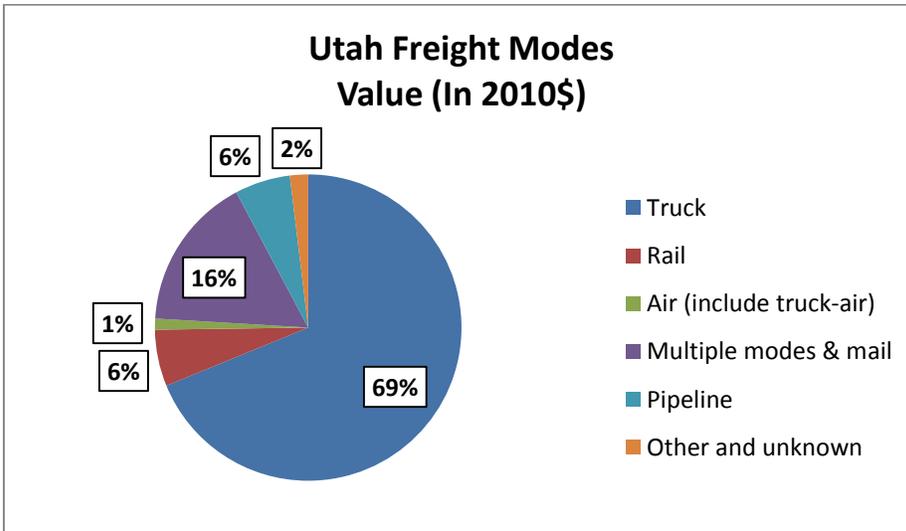
However, the importance of rail to Utah’s economy is also noteworthy, highlighting in particular the transportation needs of Utah’s mining sector. The development of the oil shale industry is one example of an area in which access to Utah’s freight rail network may in the future be a growing success factor for the state’s economy.

**Figure 1: Utah Freight Modes (By Tonnage)**



Source: USDOT Freight Analysis Framework, 2010

**Figure 2: Utah Freight Modes (By Value)**



Source: USDOT Freight Analysis Framework, 2010

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The freight on Utah's transportation system either shipped to or from a location within Utah has the greatest effect on the state's economy. (For example, pass-through movements, while placing demands on the transportation system, do not involve significant transactions in Utah's economy). For this reason, freight that is inbound, outbound, and internal (with both origin and destination in Utah) is of the greatest economic significance.

Of the inbound, outbound, or internal freight supported by Utah's transportation system, more than half (over 106 Million tons) is moved among locations within the state.<sup>9</sup> More than a quarter (nearly 56 Million tons) is exported from Utah firms to markets outside of the state and the remaining fifth (39.4 Million tons) are brought to Utah's businesses or consumers from outside of the state. Table 3 shows the relative shares of inbound, outbound, and internal freight moving on Utah's transportation system.

**Table 3: Nature of Utah Freight Movements**

Type of Movement	Tons (Million)	Tonnage %
Inbound	39.4	20%
Outbound	55.8	28%
Internal	106.6	53%
<b>TOTAL: All Freight</b>	<b>201.7</b>	<b>100%</b>

Source: USDOT Freight Analysis Framework, 2010

Of the 55.8 Million tons of freight exported on Utah's transportation system, 45 percent (over 25.2 Million tons) is traded with Utah's bordering states of Idaho, Nevada, Wyoming, Colorado, and Arizona, with nearly one-fifth traded with Idaho. Another 16 percent is traded with the west-coast states of California and Washington while 39 percent is traded with more remote partners in Texas, Tennessee, Wisconsin, or elsewhere in the U.S. Table 4 shows Utah's top outbound freight trading partners.

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<sup>9</sup> \*\*The movements considered in this analysis only include movements that have an effect on Utah's economy, therefore through movements are not included in the totals.

**Table 4: Utah’s Top Outbound Freight Trading Partners**

*Top Consumer/Users of Utah's Outbound Freight*

Destination	Tons (Million)	Tonnage %
Idaho	10.3	19%
California	7.0	13%
Nevada	6.5	12%
Wyoming	5.0	9%
Texas	3.3	6%
Colorado	2.1	4%
Washington	1.7	3%
Arizona	1.3	2%
Wisconsin	1.2	2%
Tennessee	1.2	2%
<i>Other Destinations</i>	16.2	29%
<b>TOTAL: All Outbound</b>	<b>55.8</b>	<b>100%</b>

Source: USDOT, Freight Analysis Framework, 2010

Of the 39.4 Million tons of freight imported to Utah on the transportation system, 40 percent (or 15.9 Million tons) enter from the border states of Colorado, Wyoming, Idaho, and Nevada. Another 17 percent (or 6.8 Million tons) enter from suppliers in the west-coast states of California and Oregon. The remainder arrives from more remote locations within New York, Texas, and Montana, each accounting for significant shares.

**Table 5: Top Suppliers of Utah’s Inbound Freight**

*Top Suppliers of Utah's' Inbound Freight*

Origin	Tons (Million)	Tonnage %
Colorado	6.2	16%
California	4.2	11%
Wyoming	3.8	10%
New York	3.1	8%
Oregon	2.6	7%
Texas	2.6	7%
Idaho	2.1	5%
Montana	1.9	5%
Nevada	1.9	5%
Oklahoma	1.2	3%
<i>Other Destinations</i>	9.9	25%
<b>TOTAL: All Inbound</b>	<b>39.4</b>	<b>100%</b>

Source: USDOT Freight Analysis Framework, 2010

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Overall, Utah's highway system is a life-line to critical trading partners within the western region and elsewhere in the nation. Furthermore, even for rail movements, highway investment of the type envisioned in the *Unified Plan* is critical to support intermodal connectivity and access.

The ability of Utah's businesses to access markets in other states as well as inputs to production relies heavily on the efficiency and reliability of the transportation system for both people and goods. Understanding the degree to which Utah's industries (and their supporting supply chains) rely on business from outside the state highlights the importance of an efficient transportation network to enable Utah to sell goods and services nationally, and produce economic output involving people and goods from elsewhere. An assessment of Utah's freight trading patterns also underscores the significant role of the state's transportation system in supporting intra-state trade within Utah.

# 2 SOCIETAL BENEFITS OF ENHANCED INVESTMENT

## 2.1 Different Investment Levels

To best understand the economic implications of investing in Utah’s transportation system, it is helpful to consider different investment levels. For the purpose of this analysis, three different investment levels are considered for the 30-year period from 2011 to 2040. These include:

### Maintain Existing System

The *Maintain Existing System* investment level involves investing the \$18.3 Billion needed to keep Utah’s transportation system in the same condition it was in 2011. This investment level does not allow for any expansion to accommodate new growth in the state’s transportation needs and allows congestion and other problems to continue to grow from 2011 to 2040 without making any effort to keep pace or contain private sector transportation costs in the long term. While this investment level represents the minimum investment that could allow the transportation system to stay in place, it does offer some benefits for simply not allowing the system to deteriorate to below 2011 levels, as would occur if the \$18.3 Billion were not invested.

### Business as Usual

The *Business as Usual* investment level involves investing the \$43.4 Billion available from current revenues for the transportation system. This investment level can be supported by existing revenues and covers the \$18.3 Billion required to maintain today’s system, plus an additional \$25.1 billion to accommodate future growth. The *Business as Usual* investment level therefore creates more benefits than simply maintaining the existing system, but imposes higher private sector congestion, reliability, safety and air quality costs on Utah’s economy than would occur under the fully funded *Unified Plan*.

### Unified Plan

The *Unified Plan* investment level involves investing the \$54.7 Billion to cover future needs envisioned by the *Unified Plan*. This investment level includes the \$18.3 Billion required to maintain today’s system, plus the \$25.1 Billion worth of system expansion supported by existing revenue streams (in the *Business as Usual* scenario), plus an additional \$11.3 Billion to further accommodate economic growth and reduce private sector costs across all modes. Table 6 summarizes the present value of outlays associated with each of these three different investment levels for the 30-year period from 2011 to 2040.

Table 6: Outlays for Three Different Investment Levels

**Summary of Outlays by Expenditure Type – Utah  
Transportation Investment**

Expenditure Type	Investment Level (In \$Billions)		
	Maintain Existing System	Business As Usual	Unified Plan
<b>Preservation (Maintain Today's System)</b> <i>Total Cost Preserve Existing Infrastructure &amp; Services</i>	\$18.3	\$18.3	\$18.3
<b>Expansion (New Facilities and Services)</b> Total Investment in System Expansion	\$0	\$25.1	\$36.4
<b>TOTAL OUTLAYS:</b>	\$18.3	\$43.4	\$54.7

**Discounting and Cumulative Costs and Benefits**

All costs and benefits reported in this chapter are reported as the cumulative value of cost and benefit streams accruing in the 30-year period from 2011 to 2040, discounted at 3.5%.

**2.2 Benefits of Different Investment Levels**

By investing the \$18.3 Billion to maintain today’s system, Utah can avoid the costs associated with deterioration of roads, bridges and transit vehicles. The benefits of simply preventing system deterioration are considered *preservation benefits* (because they accrue simply from preserving today’s system). Very modest estimates of the likely savings to Utah’s households and businesses indicate that by making the \$18.3 Billion preservation investment in the 30-year period from 2011 to 2040, Utah will save its households and businesses approximately \$46.3 billion in vehicle operating costs that would accrue during this period if conditions were allowed to deteriorate to below 2011 levels. This means that for every \$1.00 spent on system preservation, Utah households and businesses will have saved \$2.53 in reduced costs from deteriorating conditions<sup>10</sup>.

The benefits of investing in new and expanded capacity and functionality for the transportation system are considered *expansion benefits*. Investing the additional cumulative \$25.1 Billion worth of system expansion in the *Business as Usual* scenario (for the 30-year period from 2011 to 2040) is expected to save Utah households and businesses an additional cumulative \$31.2 Billion over this 30-year period. This means that for every \$1.00 of public outlays on expanding the transportation system in this scenario, Utah households and businesses will have saved \$1.24 by 2040 in reduced congestion and reliability costs.

<sup>10</sup> This ratio indicates the total aggregate savings over the 30-year period per dollar spent, and cannot be interpreted as an average savings per household or business (due to changes in population during the period).

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Furthermore, investing the cumulative \$36.4 Billion worth of system expansion (in the 30-year period) in the *Unified Plan* scenario is expected to save Utah households and businesses a total of \$38.4 Billion from 2011 to 2040. This means that for every \$1.00 of public outlays on expanding the transportation system in this scenario, Utah households and businesses will have saved \$1.06 by 2040 in congestion, safety, and environmental costs.

Because both the *Business as Usual* and *Unified Plan* scenarios are expected to make the transportation system larger, it is expected that in the future more people will be using the system under both of these scenarios<sup>11</sup>. For example, people will use more gas and put more mileage on their cars when there is a larger transportation system available, and this will cost some money in the economy. The *Unified Plan* scenario actually has fewer of these costs of a larger system than the *Business as Usual* scenario, primarily because many of the improvements in the *Unified Plan* scenario that are not in the *Business as Usual* scenario are transit investments enabling more people to use the system with less cost. For all scenarios, these costs associated with a larger transportation system are offset by the fact that people and goods can get to their destinations faster, losing less time in congested conditions, and using more of their travel time on other activities (such as working on a laptop while riding a train), and businesses also lose less productive time waiting for unreliable or late deliveries. In all scenarios the travel time and reliability savings to households and the productivity gains to businesses will outweigh the costs that households or businesses accrue using the expanded system.

Table 7 shows, in present value dollar terms for the 30-year period from 2011 to 2040, the specific ways in which Utah's households and businesses are expected to save money on transportation under each of the possible investment scenarios considered in this analysis.

In the 30-year period from 2011 to 2040, the \$25.1 Billion of expansion dollars invested in the *Business as Usual* scenario is expected to save Utah households over \$21.3 Billion in congestion related travel time and reliability costs and Utah businesses over \$20.5 Billion in congestion related time and reliability costs. The improved transportation system is expected to save businesses an additional \$1.6 Billion in trucking reliability savings and over \$2 Billion in enhanced business productivity from enhanced access to markets. The scenario will still have approximately \$63 Million in residual value at the end of the analysis period in 2040. These total gross expansion benefits of approximately \$46.0 Billion, offset by \$14.2 Billion in the costs associated with using the larger system, leave Utah's households and businesses with approximately \$31.2 Billion in expansion benefits plus the \$46.3 Billion in preservation benefits, for a total of \$77.5 Billion in overall benefits shown in Table 7.

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<sup>11</sup> Latent travel demand is accounted for in the travel demand models of the Wasatch Front Regional Council and Mountainland Association of Governments (WFRC/MAG) as well as by the Cache and Dixie MPO's and the Utah Statewide Travel Model (USTM).

**Table 7: Societal Benefits From Utah Transportation Investment Levels**

**Nature of Benefits Associated with Utah Transportation investment**

	Maintain Existing System (\$Millions)	Business as Usual (\$Millions)	Unified Plan (\$Millions)
<b>Total Costs (Public Outlays)</b>	<b>\$18,300</b>	<b>\$43,400</b>	<b>\$54,700</b>
<b>Benefits Achieved in Utah's Economy</b>			
Personal Time & Reliability Savings	\$0	\$21,349	\$25,449
Business Time & Reliability Savings	\$0	\$20,452	\$23,028
Trucking Reliability Savings	\$0	\$1,561	\$1,571
Enhanced Business Productivity	\$0	\$2,007	\$2,319
Residual Value	\$0	\$63	\$115
Preservation Benefit (from driving on smoother pavements)	\$46,312	\$46,312	\$46,312
User Costs of Using a Larger System	\$0	-\$14,248	-\$14,042
<b>Total Preservation Benefit</b>	<b>\$46,312</b>	<b>\$46,312</b>	<b>\$46,312</b>
<b>Total Expansion Benefit</b>	<b>\$0</b>	<b>\$31,184</b>	<b>\$38,440</b>
<b>Total Benefits (Private Savings)</b>	<b>\$46,312</b>	<b>\$77,496</b>	<b>\$84,752</b>

Source: EDRG with TREDIS Software

In the same period, the \$31.2 Billion of expansion dollars invested in the *Unified Plan* scenario are expected to save Utah households nearly \$25.5 Billion in congestion related travel time and reliability costs and Utah businesses over \$23 Billion in congestion related time and reliability costs. Under this scenario, the improved transportation system is expected to save the businesses an additional \$1.6 Billion in trucking reliability savings and over \$2.3 Billion in enhanced business productivity from better access to markets. The scenario is expected to still have \$115 Million in residual value at the end of the analysis period in 2040. These total gross expansion benefits of approximately \$52.5 Billion are offset by approximately \$14 Billion in user costs associated with using the larger system will leave Utah's households and businesses with approximately \$38.4 Billion in expansion benefits plus the \$46.3 Billion in preservation benefits for a total of \$84.8 Billion in overall benefits shown in Table 7.

# 3 ECONOMIC IMPACTS OF TRANSPORTATION FUNDING

The true economic effects of investing in the improved transportation system go far beyond the simple dollars that households and businesses save on transportation. Some of the most significant effects are found through the way that Utah's economy uses those savings to become more productive, more competitive, and create opportunities in the state. The economic impacts of Utah's transportation investment are measured in terms of the jobs, income, business output, and GDP that are created as a result of improving Utah's transportation system. These four types of impacts are all related to each other, as illustrated in the following example.

If over a period of years a Utah firm saves \$20,000 due to more reliable truck delivery times, the firm may invest its savings into a new computer system which enables the firm to produce \$100,000 worth of additional annual output. The firm may take some of the revenue from this output and hire one new worker at \$45,000 per year. In this way, the \$20,000 benefit of the transportation savings has enabled the firm to produce \$100,000 worth of output, pay \$45,000 per year in additional wages, and create one additional job. Furthermore, the firm has made profit and added value in the production of its output, contributing to the state's gross domestic product as well.

The impact would then go on to include the indirect and induced effects on the suppliers from whom the firm buys other inputs to make the \$100,000 of output as well as businesses where the new worker spends the \$45,000 he or she earns. This example is given to show how the societal benefits (dollar savings) of an enhanced transportation system create impacts in the economy far greater than simply the dollar value of the transportation savings. This chapter explores the nature of overall economic impacts expected to result from Utah's transportation investments.

## 3.1 Impacts on Jobs, Household Income, Business Output and GDP

### Sources of Transportation Impacts

In the above example, transportation investment impact is the result of a more efficient transportation system. This is one of four ways that Utah's transportation investments can affect the state's economy. The four ways Utah's economy realizes the economic impacts of investing in its transportation system include:

- Transportation Efficiency Impact

- Market Access Impact
- Land Use or Business Attraction Impact, and
- Construction Impact

These different ways combine to create the nearly 183,000 jobs, \$130.5 Billion in household income, \$347.5 Billion in business output, and \$183.6 Billion in GDP associated with fully funding the *Unified Plan* scenario.

### **Preservation Impact**

The previous chapter described how spending the \$18.3 Billion needed to maintain today's system is expected to save Utah's household and businesses approximately \$46.3 Billion in the 30-year period from 2011 to 2040. With these savings, Utah's economy is expected to generate \$64.8 Billion in business output, \$25.8 Billion in household income, \$36.4 Billion in GDP and over 49,000 jobs during this period. These preservation impacts are included within economic impacts reported above. Throughout this chapter, these preservation impacts are included as part of the *transportation efficiency* impact totals of jobs, business output, household income and GDP for both the *Business as Usual* and *Unified Plan* investment scenarios. Hence all of the transportation investment impacts given in this chapter represent improvements in economic conditions over a future that would occur if Utah were to make no investment (whatsoever) in the transportation system.

### **Cumulative Nature of Impacts**

All impacts are reported as cumulative impacts for the entire 30-year period from 2011 to 2040, with the exception of jobs, which are reported as the difference in the anticipated impact on Utah's overall employment level in 2040. Most impacts can be reported as cumulative totals to eliminate any ambiguity which may be caused due to phasing of projects or performance effects.

Jobs however are reported as a 2040 annual level because jobs do not lend themselves to cumulative totals in the same way as earnings, output and GDP. For example, if one person holds a job for 30 years it is still counted as one job, not 30. However if in that 30 years the individual earns \$900,000, it is reasonable to say that the individual has earned \$900,000 in one job over 20 years. Hence in this report, we report income, GDP and business output as cumulative 30-year totals, and jobs in terms of the impact in 2040.

### **Transportation Efficiency Impact**

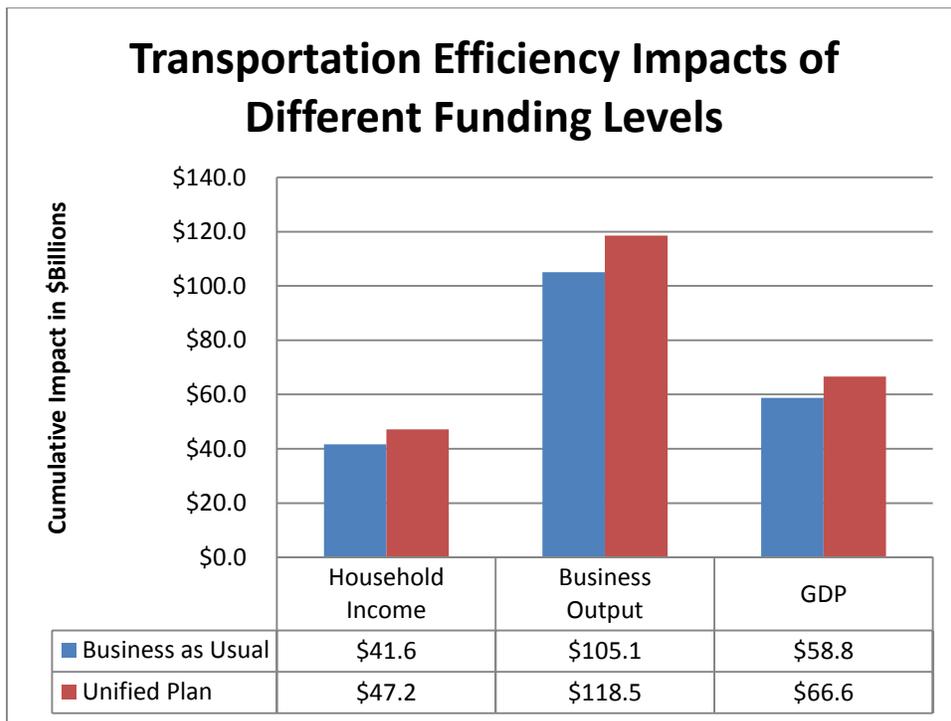
Transportation efficiency impacts occur because improved transportation conditions enable households and businesses to save (and then spend or invest) money they would otherwise have had to spend on transportation problems. For example, when there is less congestion, fewer crashes, better road and bridge quality and a better environment, people and businesses have to spend less on transportation related costs. They are spending less on insurance, wear and tear on their cars, and losing less time sitting in traffic or waiting for

deliveries. When they save this money, they can spend it doing more productive things in Utah's economy (like going to school, building onto their homes, or being more productive at work).

By 2040, the improvements to Utah’s transportation infrastructure investments are expected to generate enough household and business savings to create over 76,000 new jobs with the *Business as Usual* scenario and over 91,000 new jobs with the *Unified Plan* scenario. The cumulative transportation efficiency impacts for the *Business as Usual* scenario from 2011 to 2040 are expected to result in \$105.1 Billion in additional output, \$41.6 Billion in additional household income and \$58.8 Billion in GDP compared to a future with no transportation investment. The cumulative transportation efficiency impacts of the *Unified Plan* scenario are expected to result in \$118.5 Billion in additional business output, \$47.4 Billion in household income and \$66.6 Billion in GDP when compared to a future with no transportation investment.

Figure 3 compares the dollar value of transportation efficiency impacts of the *Business as Usual* and *Unified Plan* investment levels for Utah’s transportation system.

**Figure 3: Comparative Transportation Efficiency Impacts of Utah Transportation System Funding Levels**



Source: EDRG with TREDIS Software

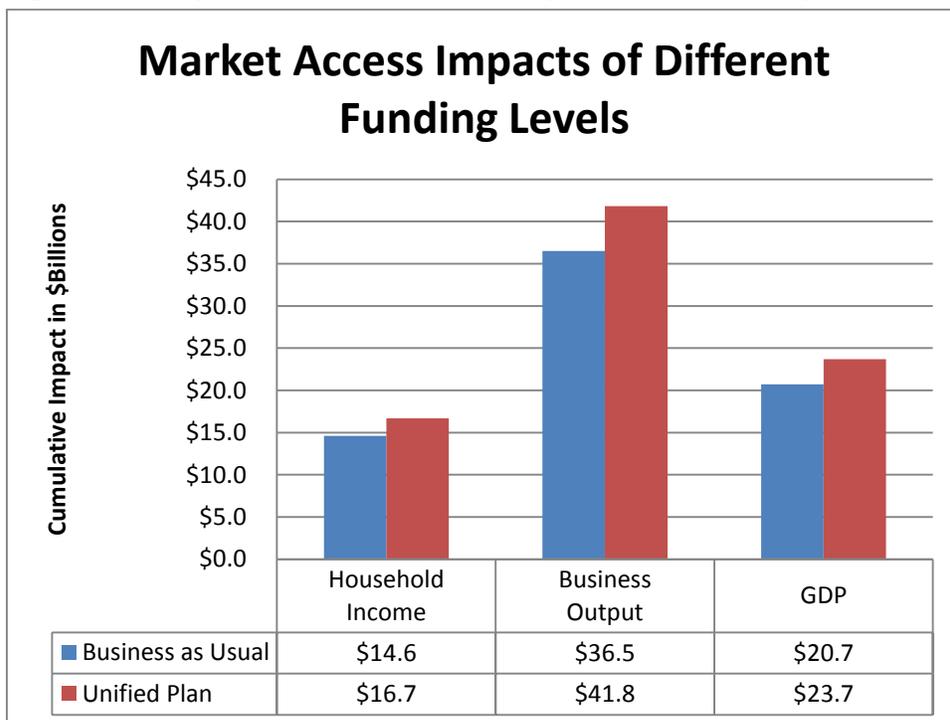
## Market Access Impact

Market access impacts occur when the transportation system is well connected and uncongested, providing businesses with more choices about trading partners. For example, a firm has a larger choice of distribution channels or of suppliers when congestion relief gives it more places within a 3-hour delivery radius. With more places accessible, the firm can be more selective about where it buys its inputs—or where it sells its products. This added choice enables the business to be more productive and ultimately more competitive. More competitive firms can expand and hire more workers and produce more output in Utah.

By 2040, the effects of Utah’s transportation investments will have improved Utah firms’ choices of suppliers and markets to create over 15,000 new jobs with the *Business as Usual* scenario and over 17,000 new jobs with the *Unified Plan* scenario. The cumulative market access impacts for the *Business as Usual* scenario from 2011 to 2040 are expected to result in \$36.5 Billion in additional output, \$14.6 Billion in additional household income and \$20.7 Billion in GDP compared to a future with no transportation investment. The cumulative market access impacts of the *Unified Plan* scenario are expected to result in \$41.8 Billion in additional business output, \$16.7 Billion in household income and \$23.7 Billion in GDP when compared to a future with no transportation investment.

Figure 4 compares the dollar value of market access impacts of the *Business as Usual* and *Unified Plan* investment levels for Utah’s Transportation System.

**Figure 4: Comparative Market Access Impacts of Utah Transportation System Funding Levels**



Source: EDRG with TREDIS Software

## Land Use/Business Attraction Impact

The quality of the transportation system is a strategic consideration for many firms in choosing where to locate. In particular, firms shopping for sites for major new manufacturing or service establishments usually compare the travel time to major amenities like airports and central business districts, as well as average workforce commuting times. The longer an average work or business related trip is (in terms of minutes), the less likely a firm is to choose a particular location. According to EDC Utah, each year approximately 82 firms inquire specifically about travel times when making a location choice. If even one or two of them choose to locate to Utah because of competitive travel times in comparison to competing areas, it can result in as many as 2,500 new jobs coming to the state each year.

In 2012, congestion did not deter firms from choosing Utah as a place to do business. However, as Utah's transportation system becomes more congested over time, a larger and larger percentage of these 2,500 each year jobs will depend on whether or not the improvements in the *Unified Plan* are implemented, with the associated travel time and reliability savings. Given traffic growth rates and congestion levels<sup>12</sup> from available models, EDC Utah anticipates that by 2040, a significant number of firms will have made location choices that depend on whether or not travel times can be kept down to levels envisioned by the *Business as Usual* and *Unified Plan* investment scenarios.

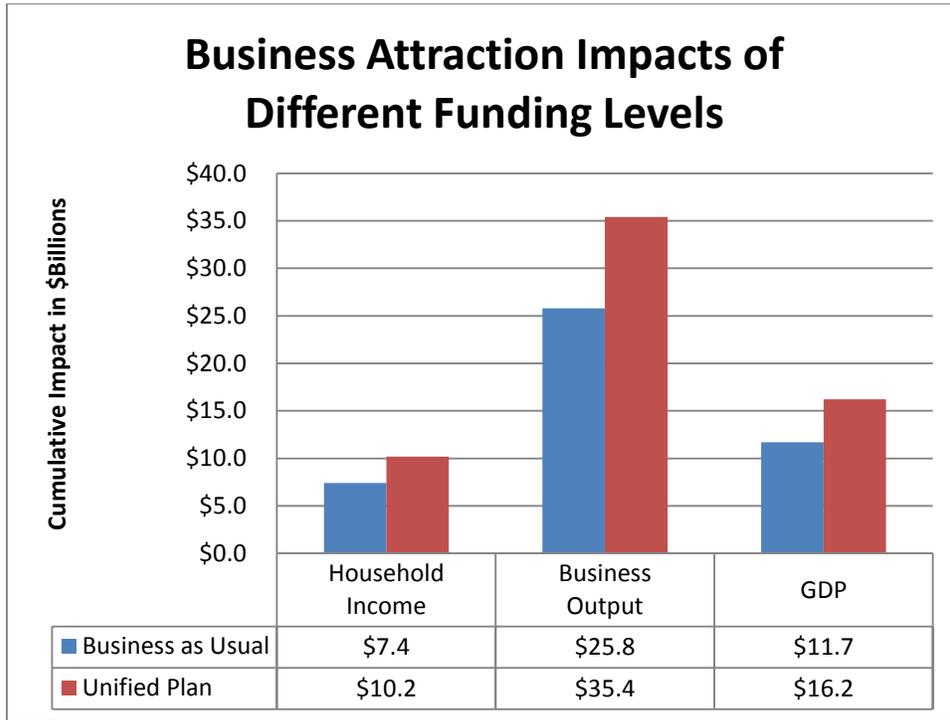
By 2040, the improvements associated with investment in Utah's transportation system will have attracted nearly 14,000 new jobs to Utah sites under the *Business as Usual* scenario and over 19,000 new jobs with the *Unified Plan* scenario. The cumulative business attraction impacts for the *Business as Usual* scenario for the 30-year period from 2011 to 2040 are expected to result in \$25.8 Billion in additional output, \$7.4 Billion in additional household income, and \$11.7 Billion in GDP compared to a future with no transportation investment. The cumulative business attraction impacts of the *Unified Plan* scenario are expected to result in \$35.4 Billion in additional business output, \$10.2 Billion in household income, and \$16.2 Billion in GDP when compared to a future with no transportation investment.

Figure 5 compares the dollar value of business attraction impacts of the *Business as Usual* and *Unified Plan* transportation investment levels in Utah's transportation system.

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<sup>12</sup> Traffic growth and congestion levels are inferred from the travel demand models of the Wasatch Front Regional Council, the Dixie MPO and the Cache MPO.

Figure 5: Comparative Business Attraction Impacts of Utah Transportation System Funding Levels



Source: EDRG with TREDIS Software

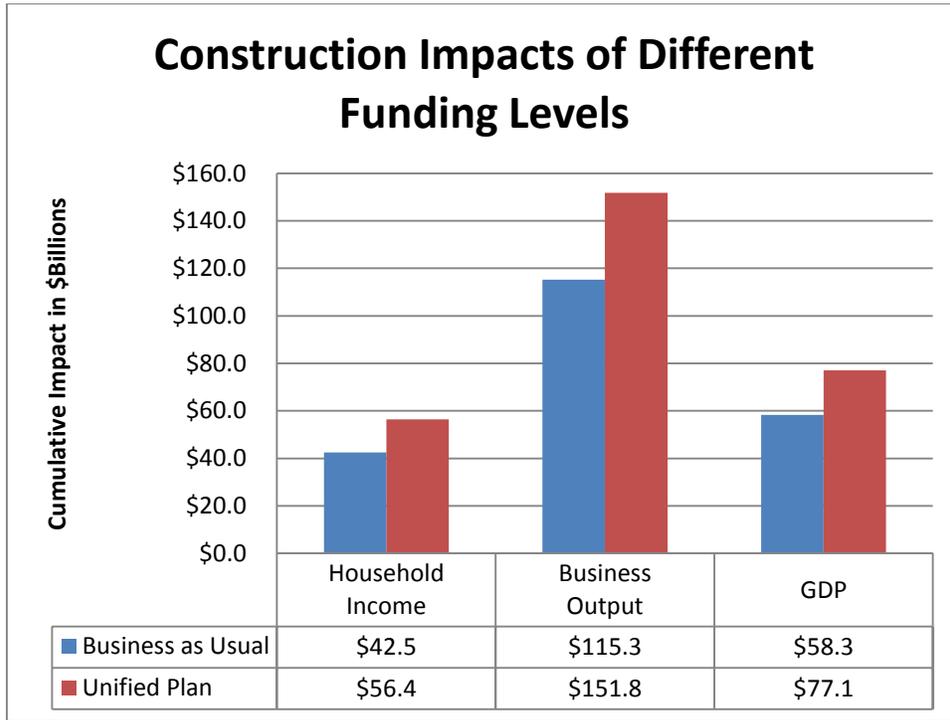
### Construction Impact

Construction jobs are created when people are employed building and operating the transportation system. As with the other impact types reported above, construction impacts include both the direct jobs, wages, output, and GDP associated with the transportation outlays as well as the indirect and induced effects of how these earnings are spent in the economy (multiplier effects).

By 2040, the construction and maintenance spending associated with Utah’s transportation investment will have created nearly 35,000 jobs under the *Business as Usual* scenario and nearly 55,000 new jobs with the *Unified Plan* scenario. The cumulative construction impacts for the *Business as Usual* scenario for the 30-year from 2011 to 2040 are expected to result in \$115.3 Billion in additional output, \$42.6 Billion in additional household income, and \$58.3 Billion in GDP compared to a future with no transportation investment. The cumulative construction impacts of the *Unified Plan* scenario are expected to result in \$151.8 Billion in additional business output, \$56.4 Billion in household income, and \$77.1 Billion in GDP when compared to a future with no transportation investment.

Figure 6 compares the dollar value of construction impacts of the *Business as Usual* and *Unified Plan* investment levels in Utah’s transportation system.

Figure 6: Comparative Construction Impacts of Utah Transportation System Funding Levels



Source: EDRG with TREDIS Software

### 3.2 Comparative Job Impacts of Scenarios

The analysis indicates that while public outlays in building, operating and maintaining transportation facilities will be a significant stimulus to the state’s economy, more two-thirds of the jobs will be created by the ways in which businesses and households spend and invest the savings and productivity gains they enjoy as a result of the improved system. For both scenarios, transportation efficiency impacts comprise the largest share of impacts, accounting for 54 percent of new jobs created under each *Business as Usual* and 50 percent of new jobs under the *Unified Plan* scenario. This difference is attributable primarily to the fact that when compared to the *Business as Usual* scenario, the *Unified Plan* scenario includes more long-term investments which are completed late in the 30-year period, hence there are fewer years in the analysis horizon for transportation efficiency effects of this scenario to accumulate. Between 10 and 11 percent of jobs will be created by the productivity gains associated with improved market access and 10 percent of the jobs will result from additional businesses attracted to Utah.

Table 8 and Figure 7 illustrate the sources of impacts under each of the investment scenarios.

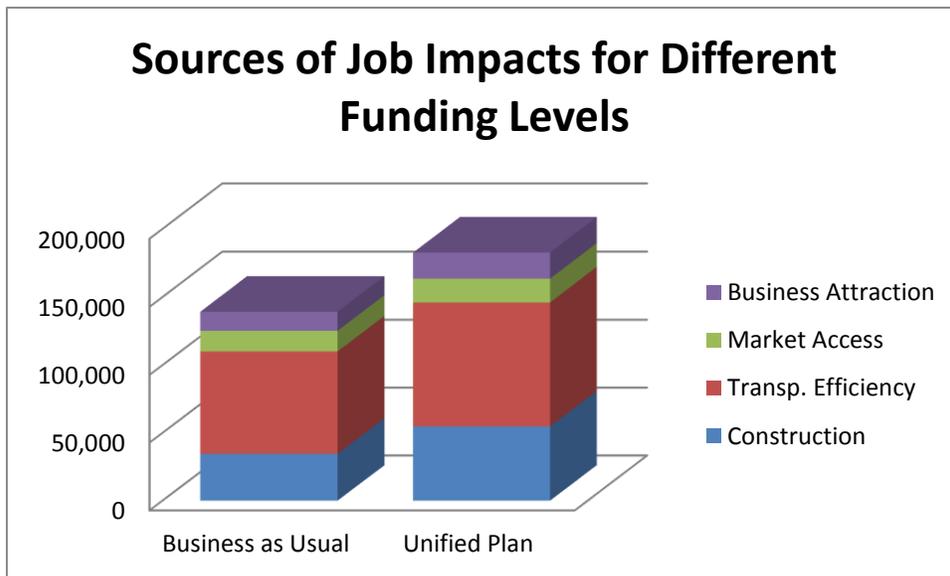
**Table 8: Sources of Impacts of Different Funding Levels for Utah Transportation Investment**

**Job Impacts of Different Funding Levels**

Sources of Impacts	Business as Usual		Unified Plan	
	Jobs	% of Jobs	Jobs	% of Jobs
Construction	34,594	25%	54,781	30%
Transp. Efficiency	75,510	54%	91,241	50%
Market Access	15,208	11%	17,466	10%
Business Attraction	13,875	10%	19,130	10%
<b>TOTAL Employment Impact</b>	<b>139,187</b>	<b>100%</b>	<b>182,618</b>	<b>100%</b>

Source: EDRG with TREDIS Software

**Figure 7: Sources of Impacts of Different Funding Levels for Utah Transportation System**



Source: EDRG with TREDIS Software

# 4 FISCAL IMPACTS OF ENHANCED INVESTMENT

More jobs and income for Utah households and output and profits for Utah businesses represent growth in the state’s economy and overall tax base. When the tax base grows due to a stronger economy, government revenues increase without any increase in tax rates.

Because the investment in the transportation system is expected to create additional jobs, business output, and personal income for Utah’s households and businesses, it is likely that federal, state, and local governments will see enhanced fiscal revenues as a result of this growth. In this way, the plan is likely to “pay its own way” to some degree, by creating new revenues over time that will partially offset the initial public investment in the infrastructure. This chapter summarizes the expected impacts of Utah’s transportation system investment on federal, state, and local government revenues in Utah.

Overall, economic growth resulting from investment in the *Business as Usual* level of transportation investment is likely to create \$6.4 Billion in additional state and local government revenues at current tax rates. Most of the revenue is expected to be generated from tax receipts on the income earned as a result of the new jobs and business output. In addition to enhancing state revenues, the additional jobs, income, and business output in Utah’s economy are expected to generate an additional \$11.2 Billion in federal revenues. It is notable that despite driving more miles, Utah’s households are expected to spend less on fuel taxes, primarily because of improved fuel economy in less congested conditions than would occur without the transportation improvements. Overall, economic growth resulting from the investment in the *Business as Usual* investment level is expected to generate approximately \$17.7 Billion in revenue at current tax rates, a sum more than one-third of its \$43.4 Billion in public outlays. The degree of economic growth resulting from investment in the *Unified Plan* level for Utah’s transportation system is likely to create \$8.1 Billion in additional state and local government revenues at current tax rates. Most of the revenue is expected to be generated from tax receipts on the income earned as a result of the new jobs and business output. In addition to state revenues, the additional jobs, income, and business output in Utah’s economy are expected to generate an additional \$14.1 Billion in federal revenues. Overall, economic growth resulting from transportation investment in the Unified Plan investment level is expected to generate over \$22.2 Billion in revenue at current tax rates, a sum greater than one-third of its \$54.7 Billion in public outlays. Table 10 summarizes the fiscal revenues expected to accrue as a result of economic growth enabled by the investment level for Utah’s transportation system.

Table 9 summarizes the fiscal revenues expected to accrue as a result of economic growth enabled by the *Business as Usual* investment level for Utah’s Transportation System.

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The degree of economic growth resulting from investment in the *Unified Plan* level for Utah’s transportation system is likely to create \$8.1 Billion in additional state and local government revenues at current tax rates. Most of the revenue is expected to be generated from tax receipts on the income earned as a result of the new jobs and business output. In addition to state revenues, the additional jobs, income, and business output in Utah’s economy are expected to generate an additional \$14.1 Billion in federal revenues. Overall, economic growth resulting from transportation investment in the Unified Plan investment level is expected to generate over \$22.2 Billion in revenue at current tax rates, a sum greater than one-third of its \$54.7 Billion in public outlays. Table 10 summarizes the fiscal revenues expected to accrue as a result of economic growth enabled by the investment level for Utah’s transportation system.

**Table 9: Fiscal Impacts of Funding Utah’s Transportation System at *Business as Usual* Level**

<i>Fiscal Impacts of Business As Usual Transportatoin Investment Level (\$Millions)</i>				
Tax/Fee Collector	Tax/Fee Description	Taxes/Fees Paid by:		Totals
		Households	Businesses	
<b>Federal Government</b>	<i>Motor Fuel Tax</i>	-\$4	\$46	<b>\$41</b>
	<i>Income Profits</i>	\$3,060	\$1,261	<b>\$4,321</b>
	<i>Social Insurance Tax (FICA)</i>	\$3,285	\$2,880	<b>\$6,165</b>
	<i>Miscellaneous Fees &amp; Taxes</i>	\$0	\$699	<b>\$699</b>
	<b>Total Federal Government</b>	<b>\$6,340</b>	<b>\$4,886</b>	<b>\$11,226</b>
<b>State and Local Government</b>	<i>Motor Fuel Tax</i>	-\$6	\$65	<b>\$59</b>
	<i>Motor Vehicle License Fees</i>	\$115	\$74	<b>\$189</b>
	<i>Income/Profits</i>	\$1,249	\$213	<b>\$1,462</b>
	<i>Sales tax</i>	Data not Available	Data Not Available	<b>\$2,256</b>
	<i>Property Tax</i>	\$25	\$1,583	<b>\$1,608</b>
	<i>Social Insurance Tax</i>	\$2	\$6	<b>\$8</b>
	<i>Miscellaneous Fees &amp; Taxes</i>	\$312	\$597	<b>\$909</b>
	<b>Total State and Local Government</b>	<b>\$1,698</b>	<b>\$2,537</b>	<b>\$6,491</b>
<b>Grand Total</b>	<b>Grand Totals for Federal, State and Local</b>	<b>\$8,038</b>	<b>\$7,423</b>	<b>\$17,716</b>

Source: EDRG with TREDIS Software

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**Table 10: Fiscal Impacts of Funding Utah’s Transportation System at *Unified Plan Level***

<b>Fiscal Impacts of Unified Plan Transportation Investment Level (\$Millions)</b>				
<b>Tax/Fee Collector</b>	<b>Tax/Fee Description</b>	<b>Taxes/Fees Paid by:</b>		<b>Totals</b>
		<i>Households</i>	<i>Businesses</i>	
<b>Federal Government</b>	<i>Motor Fuel Tax</i>	-\$56	\$6	-\$50
	<i>Income Profits</i>	\$3,870	\$1,583	\$5,453
	<i>Social Insurance Tax (FICA)</i>	\$4,155	\$3,645	\$7,799
	<i>Miscellaneous Fees &amp; Taxes</i>	\$0	\$892	\$892
	<b>Total Federal Government</b>	<b>\$7,968</b>	<b>\$6,125</b>	<b>\$14,094</b>
<b>State and Local Government</b>	<i>Motor Fuel Tax</i>	-\$75	\$14	-\$60
	<i>Motor Vehicle License Fees</i>	\$146	\$94	\$240
	<i>Income/Profits</i>	\$1,580	\$267	\$1,847
	<i>Sales tax</i>	Data not Available	Data Not Available	\$2,853
	<i>Property Tax</i>	\$31	\$2,003	\$2,034
	<i>Social Insurance Tax</i>	\$3	\$7	\$10
	<i>Miscellaneous Fees &amp; Taxes</i>	\$395	\$767	\$1,162
<b>Total State and Local Government</b>	<b>\$2,080</b>	<b>\$3,152</b>	<b>\$8,085</b>	
<b>Grand Total</b>	<b>Grand Totals for Federal, State and Local</b>	<b>\$10,049</b>	<b>\$9,277</b>	<b>\$22,179</b>

Source: EDRG with TREDIS Software

# 5 CONCLUSIONS

Utah's transportation system is a critical asset to the state, each year carrying over 3 Billion vehicle trips, over 26 Billion vehicle miles of travel, and over 964 Million vehicle hours of travel in 2010. According to the US Department of Transportation Freight Analysis Framework, in 2010 Utah's transportation system is estimated to have carried over \$185 Billion worth of goods by all modes combined. According to Minnesota Implan Group, It is estimated that in 2009, over 208,000 of Utah's employees were involved in the production of goods exported from Utah on the state's transportation system, 672,000 workers were involved in producing goods with materials shipped into Utah on the state's transportation system. Clearly the ongoing condition and performance of the transportation system is of vital importance to the state's long-term economic success.

Simply maintaining the transportation system in today's condition will cost the state \$18.3 Billion in public outlays by 2040. Investing at the \$18.3 Billion preservation level is expected to reduce Utah's private transportation cost from \$145.3 Billion to \$98.9 Billion, (a savings of \$46.3 Billion for an \$18.3 Billion investment). Further investment in the transportation system to a level of \$54.7 Billion consistent with the *Unified Plan* would reduce Utah's private transportation cost to \$60.5 Billion, a total savings of \$84.8 Billion when compared to a future with no transportation investment. For the cumulative period from 2011 to 2040, Utah's policy makers can effectively cut private sector transportation costs by nearly sixty percent (from \$145.3 Billion to \$60.5 Billion) by fully funding Utah's *Unified Plan*. Most of the savings to system users will occur because of adequately maintained pavements, bridges and transit lines, reduced congestion, more reliable deliveries and the increased productivity that businesses can enjoy when the transportation system works as efficiently as possible.

These cost savings, combined with the business attraction and construction effects of the improved transportation system will enable Utah's households and businesses to both invest and spend more in Utah's economy. The impacts of households and businesses investing and spending the proceeds of the improved transportation system can create nearly 183,000 jobs, \$130.5 Billion in household income, \$347.5 Billion in business output, and \$183.6 Billion in GDP by 2040. This expansion of the state's economy will create approximately \$8.1 Billion in state and local government revenues and \$14.1 Billion in federal government revenues at current tax rates.

Even if the state makes the more modest investment level of \$43.4 Billion as supported by current revenue streams, the investment will save Utah's households and businesses \$77.5 Billion by 2040 in comparison to a future with no transportation investment. The cost savings of this more modest investment can enable Utah's economy to produce over 139,000 new jobs, \$106.1 Billion in household income, \$282.7 Billion in business output and \$149.5 Billion in GDP by 2040. This expansion of the state's economy will create approximately \$6.5 Billion in state and local government revenues and \$11.2 Billion in

federal government revenues at current tax rates. Table 11 summarizes the key outcomes available to Utah’s economy from investing in *the* transportation system at different levels from 2011 to 2040.

**Table 11: Economic Impacts of Transportation Investment at Different Levels  
Comparative Outcomes of Different Investment Levels in Utah’s  
Transportation System**

Investment Levels	Investment In Transportation System		Effects on Utah's Economy				
	\$ Invested in <i>Unified Plan</i> (\$B)	\$ Invested in System Expansion (\$B)	\$ Private Sector Savings (\$B)	Jobs	Household Income (\$B)	Business Output (\$B)	GDP (\$B)
<i>No Investment Whatsoever</i>	\$0	\$0	\$0	0	\$0	\$0	\$0
<i>Maintain Existing System</i>	\$18.3	\$0.0	\$46.3	49,881	\$25.8	\$64.8	\$36.4
<i>Business as Usual scenario</i>	\$43.4	\$25.1	\$77.5	139,187	\$106.1	\$282.7	\$149.5
<i>Unified Plan scenario</i>	\$54.7	\$36.4	\$84.8	182,618	\$130.5	\$347.5	\$183.6

Source: EDRG with TREDIS Software

Overall, the dollars the state of Utah invests in improving its transportation system are expected to bring additional revenue and wages to Utah’s households and businesses at levels substantially above the dollars invested by the state. While the state’s outlays in the infrastructure and services envisioned by the *Unified Plan* can be expected to save Utah’s private sector more dollars than the state would invest in the improvements, the direct savings are only a small share of the overall payoffs to Utah’s private economy. The greatest payoffs to the economy are likely to occur in the additional output that Utah businesses can produce when the congestion and reliability costs of travel are reduced. This output creates jobs and wages for Utah workers, and ultimately leads to a substantially larger economy than would occur without any transportation investment, or if the system were left in the condition as it stood in 2011.