Wayne County Transportation Master Plan

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WAYNE COUNTY

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1 INTRODUCTION

1.1 Background

Wayne County lies entirely within the colorful Colorado Plateau geographical province and includes portions of Capitol Reef and Canyonlands National Parks. The Fremont River flows south into the county from Fish Lake and then east to join the Dirty Devil, a tributary of the Green River. The Green River marks the county's eastern border. Located in southeastern Utah, Wayne County is rectangular in shape. It is roughly 23 miles wide running north and south and 105 miles long running east and west, and contains 2,475 square miles, with 97% belonging to Federal and State Governments. There are about 2,500 people living in the county. The local economy is mostly farming and cattle, processing lumber, and tourism with points of interest: Capitol Reef and Canyonlands national parks, Horseshoe (Barrier) Canyon pictographs, and Thousand Lake Mountain (11,305 feet).

1.2 Need for a Study

The primary purpose of a transportation system is to move people and goods in a safe and efficient manner. A variety of different travel demands needs to be considered in order to fulfill this purpose, including travel within the County, passing through the County, and between rural parts of the County and the County's cities. The movement of people and goods also involves various transportation modes, including vehicular, pedestrian and bicycle, to provide for a high degree of mobility to all segments of the population. The County roadway system is currently the key element of the transportation system in that it accommodates the majority of the travel needs outside the city limits.

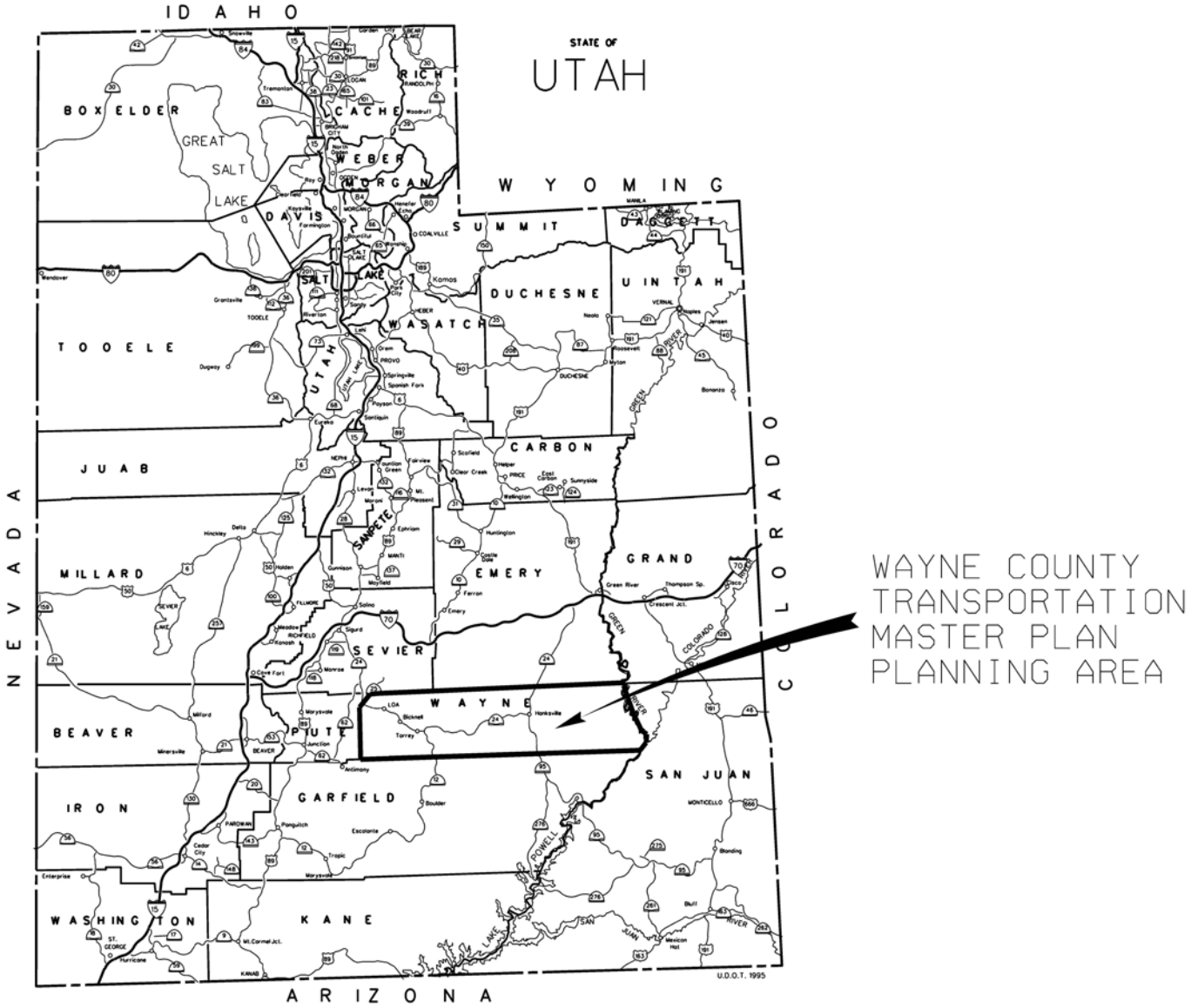
The County's ability to construct roads is constrained due to lack of funding. A majority of the county's roads budget is currently used for maintenance and repair of existing roads. These maintenance costs are directly attributable to the high number of road miles serving a large geographic area of some what low density and scattered developments. As a result, the main purpose of this transportation plan is to coordinate existing zoning and proposed developments with the future transportation needs of the County.

Wayne County's population is increasing and is anticipated to continue to increase in the future. Along with the anticipated growth comes an increase in seasonal traffic. Ongoing growth and development in the county is creating an increase in traffic demands on this roadway network that are not easily accommodated. Transportation facilities not designed to accommodate the increase in traffic volumes can create safety problems, congestion, and delay for both motorized and non-motorized travel. In order to preserve the unique character in Wayne County and build a stronger economy, proactive planning of the transportation network is essential. Completing a transportation plan will be paramount to assessing the county's roadway needs and preserving those future corridors and right –of-way to facilitate the anticipated traffic demand. Transportation concerns identified in Wayne County include:

- Safety
- Mobility
- Street Classification
- Access Management
- Future Land Use

The study area for the plan is shown in **Figure 1**.

Figure 1 - Vicinity Map



1.3 Transportation Planning Purpose

The purpose of this study is to develop a transportation master plan for Wayne County that will be used as a guideline for future planning and development in the County. Wayne County recognizes the need and the benefits of developing this plan. The primary objective of the study is to establish a reliable transportation network to guide future developments and ensure a functional transportation system. The transportation master plan includes several major components as outlined below:

- Analysis of existing conditions
- Analysis of future 20 year conditions
- Short range transportation plan
- Long range transportation plan
- Access management guidelines
- Corridor preservation guidelines

Analysis of existing conditions establishes a baseline that can be used as a gauge for future development. Improvements in the short range plan focus on specific projects to improve deficiencies in the existing transportation system and account for projects that are currently being planned. The short range plan identifies improvements to accommodate immediate future growth and development. The long range plan will identify those projects which require significant advance planning and funding to implement, and which are needed to accommodate future traffic demand. Access Management principles introduced in this plan will balance the need for roadway access with the importance of maintaining mobility on the roadways. The next section describes the planning process for developing the plan.

1.3.1 Community Planning

The planning process requires a target or goal. The community vision as outlined in the county's General Plan serves as this target and defines the planning process. This includes a master planning process that helps overall community planning and enhances the understanding of the relationship between individual community elements. The best example of this is the interrelationship between transportation and land use. An expensive cycle of incremental road improvements and land use changes will occur unless these two elements are planned in a coordinated fashion. Proper planning allows early implementation of the ultimate transportation facilities necessary to accommodate the ultimate land use adjacent to the roadway.

1.3.2 Economic Viability

Traffic congestion is bad for economic development. Raw material and product shipping costs increase proportionally with congestion. Customers will avoid stores that are difficult or dangerous to reach. The transportation system is the lifeline for economic viability; much like the human body's circulatory system provides blood to organs and muscles. Arterial blood clots can be fatal to the body and roadway traffic congestion can be fatal to a county's economic health. For this reason, efficient transportation mobility is vital to a county's economic growth and sustainability.

1.3.3 Safety to Citizens

Transportation safety is a major goal of good planning. The integration of automobiles,

agricultural equipment, bicyclists, equestrians, pedestrians, and wheelchairs must occur in a safe and equitable manner. Traffic congestion leads to dangerous driving behavior and increased accident rates for vehicles and pedestrians. Approximately 40,000 people die every year in vehicular accidents in the United States, which makes traffic accidents the third leading cause of death in the country. It is the leading cause of death for people under the age of 30. Utah averages about one fatal car accident per day as reported by the Utah Highway Safety Office. Roadways that are planned and designed correctly can reduce the accident rate by as much as 30%. This plan addresses accident rates in Wayne County and recommends a strategy to decrease these rates.

1.3.4 Health of Citizens

Quality of life includes many factors. Some of the factors that are important to the citizens in Wayne County include: work commute time, the preservation of rural environment and scenic views, air quality, safety, architectural uniqueness, and recreational facilities development. A poorly planned transportation system diminishes all of these elements. There are three reasons why planning improvements to the roadway system should be made:

1. Mobility – Alleviate existing or anticipated traffic congestion
2. Safety – Improve safety for drivers and pedestrians
3. Access – Provide efficient access routes to newly developed portions of the County

1.3.5 Legal Basis for Development Exaction

Due to the decrease in funding available from federal and state sources, local governments are asking land developers to pay for the infrastructure necessary to support proposed development projects. A long range plan is the legal basis for these exactions and impact fees. Legal challenges will be minimized if the estimated roadway construction costs are based on the county vision and system plans that support the vision.

1.3.6 UDOT Coordination

The Utah Department of Transportation (UDOT) is responsible for the safe and efficient operation of state roads. Coordination with UDOT is essential in obtaining federal and state monies to construct transportation facilities. This coordination will also help the county put planned projects in the State Transportation Improvement Program (STIP). Lack of overall planning and coordination with the State often leads to haphazard results and poor circulation along transportation corridors supported by the State.

1.4 Study Process

The study process for the Wayne County Transportation Master Plan is depicted in **Figure 2**. The goal of this procedure is to identify the needs, opportunities, and constraints for both establishing and implementing the transportation plan. This process involves the participation of the county and public for guidance, review, evaluation and recommendations in developing the transportation plans.

The first component of the study process is to evaluate the existing and future traffic conditions, roadway infrastructure, and population and employment conditions. The existing conditions evaluation of existing conditions provides a comparison basis for the analysis of future conditions. Short-term and long-term Population and employment forecasts are developed to help formulate future project locations and concepts as part of the overall plan.

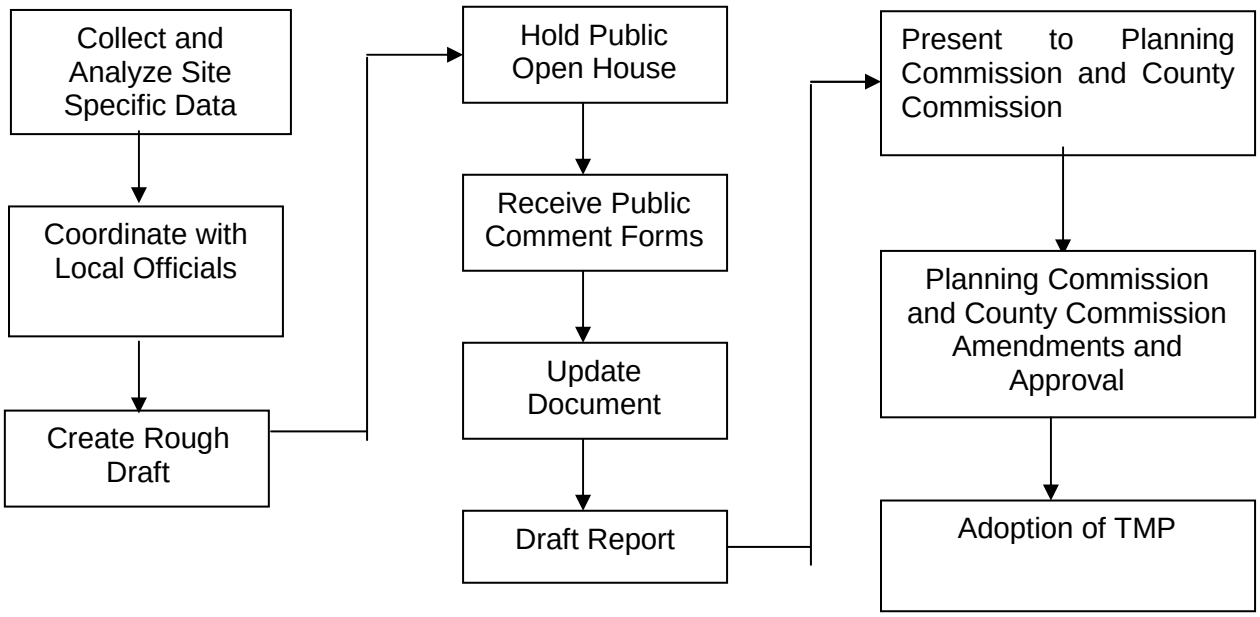
The second component of the study process is obtaining public input. This component is used

to help identify problems being experienced by the general public so the transportation system can be thoroughly evaluated. This input also helps to prioritize the transportation issues. Wayne County citizens were informed of the plan through public meetings in an "open house" format that was held on several different dates in 2009. Project information was displayed and public comments were recorded for use and incorporation into the plan as necessary. **Appendix 2** contains the attendees list and comments received from the public during this meeting. (In addition to this meeting, a draft report was available at the front counter of the County Offices for review and comment by the public. This report was available for several months during this process).

The third component of the study process is to present and obtain approval from the Planning Commission and County Commission. This was accomplished with separate meetings with each of the commissions. Comments from each body were incorporated into the final document. Transportation projects that were recommended for the short term and long range needs were discussed and finalized. After which, the master plan is adopted.

The study process solicits the input from the public on several different occasions. This public participation element has been included in the study process to ensure that any decisions made regarding this study are acceptable to the county. In addition, the Planning Commission holds their regular meetings to take input on the plan before it is adopted by the County Commission.

Figure 2 - Transportation Master Plan Study Process



1.5 Study Goals

Wayne County's transportation concerns are described in the *Wayne County General Plan* (Adopted: May, 1994).

The major issue with respect to county transportation facilities is maintenance. State roads currently receive the best maintenance and the most funding, with county roads receiving significantly less. Of greater concern for state and county roads is the fact that many of these facilities have already exceeded their 25 to 30 year design life and are in need of major rehabilitation, reconstruction, or replacement. A lot of the county roads were not constructed to adequately handle drainage and may also be structurally inadequate (thickness of asphalt, road base, or sub-base). Many local roads are in poor condition in the county.

2 EXISTING CONDITIONS

An inventory and evaluation of existing conditions was conducted to identify current transportation infrastructure and land use problems and uses which influence the local and area wide transportation facilities and area wide system. This information was then used as a baseline to identify and measure improvements.

2.1 Land Use

It is essential to analyze and forecast traffic volumes with an understanding of the land uses within the study area. Land along transportation corridors develops and typically follows future use plans identified by the County. Especially in rural areas such as Wayne County the growth follows the transportation corridors and these corridors need to be planned appropriately to handle the anticipated land uses.

2.2 Demographic & Socioeconomic Data

Table 1 shows the 2000 census population and housing data for Wayne County. The data in this section is a compilation of information from the census and the Governor's Office of Planning and Budget (GOPB). The data presented here is to establish a sense of growth in the county over the last several decades. This can be used as an aide to forecast future growth in the county.

Table 1 – 2000 Census Data

Population	Housing Units	Area (sq mi)	Population Density (pop/sq mi)	Housing Density (HU/sq mi)
2,509	1,424	2,460	1.02	.578

Table 2 compares the population growth for the State of Utah and Wayne County. The table shows a decline in population in Wayne County from 1950 to 1970 then an increase in population from 1970 to 2005. Wayne County has averaged 2.1% yearly growth from 1970 to 2000 and a 1.4% yearly growth from 2000 to 2005. These annual average growth rates are below the statewide average growth rates of 2.5% per year from 1970 to 2000 and 3.2% per year from 2000 to 2006.

Table 2 – Population Growth Trends

Year	State of Utah	Wayne County
1950	688,862	2,200
1960	890,627	1,700
1970	1,059,273	1,450
1980	1,461,037	1,950
1990	1,722,850	2,163
2000	2,233,169	2,509
Average Annual Growth (1970-2000)	2.5%	1.9%
2006	2,615,870	2,535
Average Annual Growth (2000-2006)	3.2%	.2%

Wayne County has some unique demographic characteristics when compared with the State, particularly with respect to age demographics. In the 20 to 24 year old category, the State is at 10.1% and the County is at 5.7%. In the 45 to 54 year old category, the State is at 10.6 % and the County is at 13.4%. For the 65+ year old category, the State is at 8.7% and the County is at 15.5%. The median age for the population in the State of Utah and for Wayne County is 27.1 years and 34.1 years respectively.

The race demographics show a trend that is different from the state as well. The State has a smaller Non-Hispanic White population percentage, 85.3%, compared to the County's 96.3%. Wayne County is more typical of the rural parts of the State, which tends to have a smaller minority population.

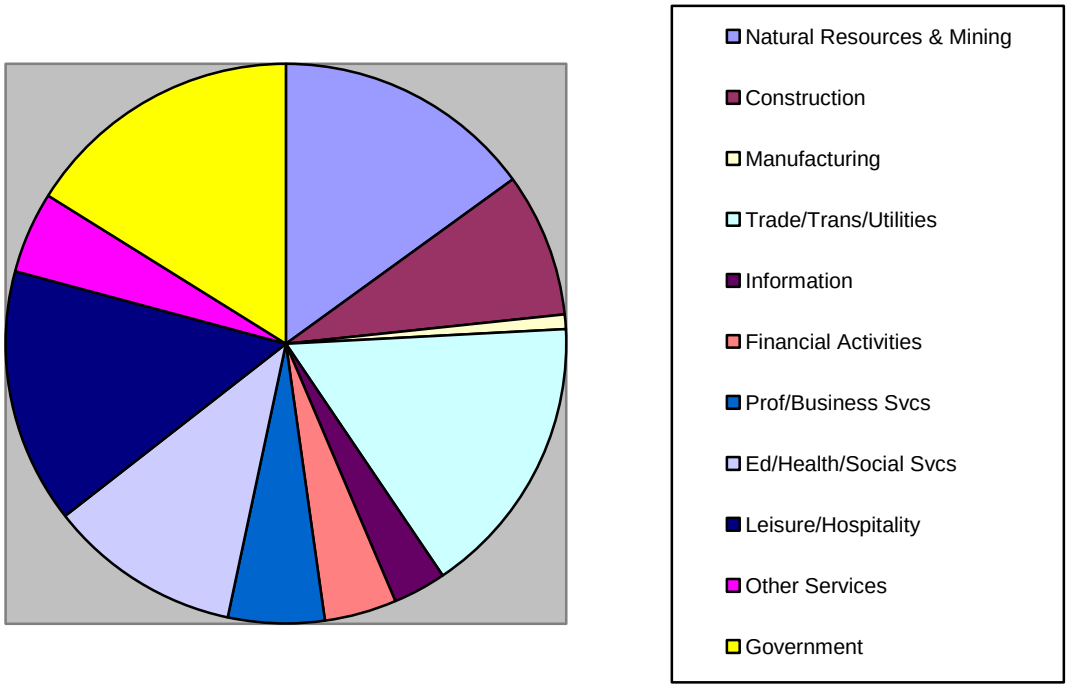
The 2000 median income in Wayne County is $32,383 compared to the State median household income of $46,706.

The unemployment rate in the State was 3.4% and in Wayne County it was 2.1% in 2000. According to the Governor's Office of Planning and Budget, in 2000 there were approximately 1,149 employees working in Wayne County, which is 63.8 % of Wayne County's total population.

Figure 3 shows the 2008 job distribution by industry in Wayne County.

Figure 3 – Employment Data (extracted from GOPB website)

2008 Wayne County Jobs Distribution by Industry



2.3 Roadway Network Inventory

A wide variety of traffic and roadway data was collected in August of 2007 in order to develop the Master Transportation Plan. This data was used to analyze the existing conditions and to help develop the future conditions.

The following information was gathered for the existing roadway network:

- Number of lanes
- Speed limits
- Daily traffic counts on selected roadway segments
- UDOT planned and funded roadway improvement projects
- Vehicle accident information

The County roadway network provides the dominant means of transportation for this area, with the state highway system serving as the backbone for this network. Vehicular travel relies heavily on a well maintained and complete roadway network. The traffic counts that were collected are included in **Appendix 4**.

2.4 Functional Classification

A roadway network is comprised of a hierarchy of roadways whose functional classifications are defined by their usage. In general, streets serve two functions; they provide access and mobility. The relative degree to which a road serves these functions defines its functional

classification. In order of their ability to provide mobility, the roadway functional types are more thoroughly described as follows:

2.4.1 State and U.S. Highway System

Much of the primary regional roadway system in Wayne County consists of roads that are maintained by the state government:

- Federal funds are available and administered through UDOT to assist in improving the roadway infrastructure in the county.
- State Highways in the county include segments of SR-12, SR-24, SR-72, and SR-95. These roads generally serve collector and minor arterial roadway functions.

2.4.2 Arterials

Arterials carry longer-distance traffic flow for regional, intercommunity and major commuting purposes. Arterials have a limited number of at-grade intersections and, only when other alternatives do not exist, direct property access. Arterials can carry significant traffic volumes at higher speeds for longer distances, and accesses are seldom spaced at closer than one-mile intervals.

2.4.3 Major Collectors

Major collectors are the next highest classification and are higher speed roadways where mobility still takes precedence over access. This designation is also used for rural primary facilities where the arterial classification is not warranted by lanes or volumes.

2.4.4 Minor Collectors

Minor collectors serve as main connectors between communities and neighborhoods. They distribute traffic between arterials/major collectors and local roads. Most of the traffic on minor collectors has an origin or a destination within the community. Also known as rural secondary facilities, this classification includes most county roads that are numbered and are not classified as major collectors or arterials.

2.4.5 Local Roads

The primary function of local roads is to provide access to adjacent land uses, whether it is residences, businesses, or community facilities. Local streets generally are internal to or serve an access function for a single neighborhood or development. Traffic using local roads should have a close-by origin or destination. Typically, county numbered roadways with a local classification are limited in length and continuity.

2.4.6 Vehicle Miles of Travel (VMT)

The VMT for each roadway was calculated from two different sources. The first source was counts that were conducted on each of the listed roadways as part of this study. The second source was counts that were obtained from UDOT as part of their on-going counting procedures. The VMT was calculated by taking the daily traffic for each specific roadway and multiplying it by the length of that segment of roadway. The VMT was then used in determining the functional classification of each roadway in the study area.

Federal Guidelines limit the percentage of road miles and VMT on functionally classified highways. The allowable percentages for each classification are shown below in **Table 3.**

Table 3 – Allowable Percentage of Road Miles and VMT				
Functional Classification	**Rural**		**Urban**	
	Mileage	**VMT**	**Mileage**	**VMT**
Principal Arterial	2%-4%	30%-55%	5%-10%	40%-65%
All Arterials	6%-12%	45%-75%	15%-25%	65%-80%
Collectors	10%-25%	20%-35%	5%-10%	5%-10%
Local Roads	65%-75%	5%-20%	65%-80%	10%-30%

2.5 Roadway Conditions

2.5.1 Travel Lanes

The majority of the roads that fall under Wayne County jurisdiction consist of two travel lanes. Some of the state routes especially through some of the towns in the county are wider than two travel lanes. They typically include a center turning lane or possibly another travel lane in each direction. Several unpaved roads in the county consist of a single travel lane.

2.5.2 Surface Conditions

All State Highways in the County are paved. The study roadway segments for the County are paved. Many of the rural and mountainous roads are unpaved.

2.5.3 Travel Lanes

Traffic volumes are on indicator of the relative importance of a roadway in an area. When compared to roadway capacity estimates, traffic volumes also reveal generally how a road is functioning (level of service) and if improvements to increase capacity are necessary.

The most commonly used measurement of traffic volume is average daily traffic (ADT). ADT is defined as the total number of vehicles passing a certain point in both directions in a 24-hour period. **Figure 4** also shows the existing Average Daily Traffic (ADT) on the major roadways in the county. This number represents the total number of vehicles traveling that roadway in both directions over an average day. These ADT's were not adjusted for the average day of the week and month of the year because these adjustment factors are not available for Wayne County.

A complete list of traffic volumes on the study roadway segments is included in **Appendix 4**.

2.6 Roadway Capacities

A roadway's capacity can be defined as the maximum traffic volume that can be accommodated at desired levels of service (LOS). LOS is commonly used to define the quality of traffic flow on various roadway types based on a comparison of traffic volumes with roadway characteristics. A LOS scale ranging from A to F is used to define the quality of flow, with LOS A representing an essentially free-flow situation and LOS F representing the highest levels of congestion, with traffic volumes exceeding the intended capacity of the roadway. It is standard engineering practice to assume that a facility with LOS A through LOS D is within an acceptable range for most users. For the purpose of this study, LOS guidelines for the study roadways are LOS C or better. **Table 4** provides the resulting daily capacities based on number of lanes.

Table 4 – Rural LOS "C" Daily Traffic Capacity Estimates			
Travel Lanes	**Freeway**	**Arterial**	**Collector**
2	NA	12,000	7,500
3	NA	13,000	8,500
4	50,000	20,500	16,000
5	NA	22,000	18,000
6	72,000	30,500	NA
7	NA	33,000	NA
8	NA	NA	NA

Source: Spanish Valley Transportation Study, July 2005

The 2007 analysis indicates that all of the study roadway segments are operating at LOS A. A spreadsheet showing the 2007 LOS for the study roadway segments is found in **Appendix 5**.

2.7 Volume to Capacity Ratios

One operational measure that is used to define operational characteristics is volume to capacity ratio (v/c). This is the daily traffic volume on a given roadway divided by the daily capacity of that roadway. LOS analysis was performed for on the study roadway segments. The traffic growth projection produces daily traffic volumes (V) for roadway segments and each segment has a maximum capacity (C), which is assumed to be the LOS "C" threshold. The volume to capacity ratio (V/C) is used to measure traffic density on any given road segment. A V/C equal to 1 or more means that the road is carrying as many vehicles as possible so it is very crowded and there isn't much room to maneuver or change speeds. This typically classified as LOS "F" conditions. A V/C ratio less than 0.6 mean that the road is carrying very few vehicles so it is not crowded and there is plenty of room to maneuver or change speeds. This is typically classified as LOS "A" conditions. V/C ratios between 0.6 and 1.0 have corresponding LOS ratings from "B" to "E".

The LOS analysis is based on roadway segments excluding the intersections. On a typical roadway, the intersections are the limiting factor to the operation of the roadway segment. Hence, the LOS of the intersection is the controlling factor in determining the overall LOS for the roadway. The spreadsheet produced for roadway LOS is included in **Appendix**

Figure 4 – Existing 2007 ADT & LOS for Selected Roadway Segments

Wayne County VMT and Level of Service (LOS)

ROADWAY	LENGTH	Miles	VMT	VMT ratio	2007 Volumes	2012 Volumes	2017 Volumes	2027 Volumes	2007 V/C ratio *	2012 V/C ratio *	2017 V/C ratio *	2027 V/C ratio *	2007 LOS*	2012 LOS*	2017 LOS*	2027 LOS*	Study Recommended Classification
NOTOM ROAD	51861.66933	9.822288	1257.3	1.212	125	164	211	348	0.0171	0.0219	0.0281	0.0464	A	A	A	A	Major Collector
LANDFILL-CEMETERY ROAD	266.6022732	0.050493	0.2	0.000	4	5	7	11	0.0005	0.0007	0.0009	0.0015	A	A	A	A	Minor Collector
GILES ROAD	439.5479968	0.083248	1.3	0.001	16	21	26	43	0.0021	0.0028	0.0035	0.0057	A	A	A	A	Minor Collector
DONKEY FLAT ROAD	662.7911932	0.125529	3.1	0.003	25	32	41	68	0.0033	0.0043	0.0055	0.0091	A	A	A	A	Minor Collector
TEASDALE ROAD S	16576.59155	3.139506	304.5	0.294	97	125	160	264	0.0129	0.0167	0.0213	0.0352	A	A	A	A	Major Collector
LONESOME BEAVER ROAD	14967.32304	2.83472	82.2	0.079	29	37	48	79	0.0039	0.0049	0.0064	0.0105	A	A	A	A	Minor Collector
RIVER VIEW ROAD	12453.37328	2.358593	136.8	0.132	58	74	96	158	0.0077	0.0099	0.0128	0.0211	A	A	A	A	Minor Collector
CENTER STREET TORREY	4157.674178	0.787438	219.7	0.212	279	358	460	758	0.0372	0.0477	0.0613	0.1011	A	A	A	A	Major Collector
SAND CREEK ROAD	18510.1219	3.505099	376.8	0.363	102	131	168	277	0.0136	0.0175	0.0224	0.0369	A	A	A	A	Minor Collector
BIG ROCK ROAD	4173.785122	0.79049	116.2	0.112	147	189	242	400	0.0196	0.0252	0.0323	0.0533	A	A	A	A	Minor Collector
HORSE VALLEY ROAD	35599.74825	6.742377	370.8	0.358	55	71	91	150	0.0073	0.0095	0.0121	0.0200	A	A	A	A	Minor Collector
MOUNTAIN VIEW ROAD	13621.28633	2.579789	340.5	0.328	132	169	218	359	0.0176	0.0225	0.0291	0.0479	A	A	A	A	Minor Collector
400 SOUTH LYMAN	8983.264136	1.701378	137.8	0.133	81	104	134	220	0.0108	0.0139	0.0179	0.0293	A	A	A	A	Minor Collector
1100 EAST LOA	5289.357148	1.001772	214.4	0.207	214	275	353	582	0.0285	0.0367	0.0471	0.0776	A	A	A	A	Minor Collector
TEASDALE ROAD N	26612.88356	5.040318	1507.1	1.453	299	384	493	813	0.0399	0.0512	0.0657	0.1084	A	A	A	A	Major Collector
FISHLAKE CUT OFF ROAD	22180.76433	4.202798	159.7	0.154	38	49	63	103	0.0051	0.0065	0.0084	0.0137	A	A	A	A	Minor Collector
HATCHERY ROAD	35422.48783	6.709865	764.8	0.737	114	146	188	310	0.0152	0.0195	0.0251	0.0413	A	A	A	A	Minor Collector
400 WEST BICKNELL	10986.81739	2.080799	226.9	0.221	110	141	181	299	0.0147	0.0188	0.0241	0.0399	A	A	A	A	Minor Collector
FREMONT ROAD	14982.00393	2.837501	672.5	0.648	237	304	391	644	0.0316	0.0405	0.0521	0.0859	A	A	A	A	Minor Collector
NORTH LOA MAIN	7655.737399	1.44995	297.2	0.287	205	263	338	557	0.0273	0.0351	0.0451	0.0743	A	A	A	A	Minor Collector
SR-24					UDOT 2006 AADT												
Milepost 40.82 to mp 51.58		10.76	9092.2	8.787	845	1141	1465	2415	0.0704	0.0951	0.1221	0.2013	A	A	A	A	Arterial
Milepost 51.58 to mp 52.46		0.88	1254.0	1.209	1425	1924	2470	4072	0.1188	0.1603	0.2058	0.3393	A	A	A	A	Arterial
Milepost 52.46 to mp 53.02		0.56	1246.0	1.201	2225	3003	3856	6358	0.1854	0.2503	0.3213	0.5298	A	A	A	A	Arterial
Milepost 53.02 to mp 59.90		6.88	11813.0	11.390	1717	2318	2976	4907	0.1431	0.1932	0.2480	0.4089	A	A	A	A	Arterial
Milepost 59.90 to mp 60.55		0.65	1043.3	1.006	1605	2167	2782	4587	0.1338	0.1806	0.2318	0.3823	A	A	A	A	Arterial
Milepost 60.55 to mp 60.85		0.3	540.0	0.521	1800	2430	3120	5144	0.1500	0.2025	0.2600	0.4287	A	A	A	A	Arterial
Milepost 60.85 to mp 68.08		7.23	8603.7	8.296	1190	1606	2063	3401	0.0992	0.1338	0.1719	0.2834	A	A	A	A	Arterial
Milepost 68.08 to mp 68.20		0.12	136.8	0.132	1140	1539	1976	3258	0.0950	0.1283	0.1647	0.2715	A	A	A	A	Arterial
Milepost 68.20 to mp 69.14		0.94	1254.8	1.210	1335	1802	2314	3815	0.1113	0.1502	0.1928	0.3179	A	A	A	A	Arterial
Milepost 69.14 to mp 69.59		0.45	380.3	0.367	845	1141	1465	2415	0.0704	0.0951	0.1221	0.2013	A	A	A	A	Arterial
Milepost 69.59 to mp 73.39		3.8	1995.0	1.924	525	709	910	1500	0.0438	0.0591	0.0758	0.1250	A	A	A	A	Arterial
Milepost 73.39 to mp 88.27		14.88	6026.4	5.811	405	547	702	1157	0.0338	0.0456	0.0585	0.0964	A	A	A	A	Arterial
Milepost 88.27 to mp 116.51		28.24	11013.6	10.619	390	526	676	1114	0.0325	0.0438	0.0563	0.0928	A	A	A	A	Arterial
Milepost 116.51 to mp 125.80		9.29	3808.9	3.673	410	553	711	1172	0.0342	0.0461	0.0593	0.0977	A	A	A	A	Arterial
Milepost 125.80 to mp 136.02		10.22	3270.4	3.153	320	432	555	914	0.0267	0.0360	0.0463	0.0762	A	A	A	A	Arterial
SR-12					UDOT 2006 AADT												
Milepost 110.52 to mp 115.00		3.88	853.6	0.823	220	297	381	629	0.0183	0.0248	0.0318	0.0524	A	A	A	A	Arterial
Milepost 115.00 to mp 116.77		1.77	389.4	0.375	220	297	381	629	0.0183	0.0248	0.0318	0.0524	A	A	A	A	Arterial
Milepost 116.77 to mp 119.18		1.14	384.8	0.352	320	432	555	914	0.0267	0.0360	0.0463	0.0762	A	A	A	A	Arterial
Milepost 119.18 to mp 122.86		4.68	1263.6	1.218	270	364	468	772	0.0225	0.0303	0.0390	0.0643	A	A	A	A	Arterial
SR-72					UDOT 2006 AADT												
Milepost 0.00 to mp 1.19		1.19	776.5	0.752	655	884	1135	1872	0.0873	0.1179	0.1513	0.2496	A	A	A	A	Major Collector
Milepost 1.19 to mp 4.27		3.08	1416.8	1.366	460	621	797	1315	0.0613	0.0828	0.1063	0.1753	A	A	A	A	Major Collector
Milepost 4.27 to mp 10.97		6.7	1541.0	1.486	230	310	399	657	0.0307	0.0413	0.0532	0.0876	A	A	A	A	Major Collector
Milepost 10.97 to mp 33.54		22.57	2934.1	2.829	130	175	225	371	0.0173	0.0233	0.0300	0.0495	A	A	A	A	Major Collector
SR-95					UDOT 2006 AADT		2782										
Milepost 0.00 to mp 16.12		16.12	10478.0	10.103	650	877	1127	1857	0.0542	0.0731	0.0939	0.1548	A	A	A	A	Arterial
Milepost 16.12 to mp 26.08		9.96	6922.2	6.674	696	938	1205	1986	0.0579	0.0782	0.1004	0.1655	A	A	A	A	Arterial
FAR-1670					UDOT 2006 AADT												
Milepost 0.00 to mp 22.73		22.73	2273.0	2.192	100	135	173	286	0.0133	0.0180	0.0231	0.0381	A	A	A	A	Major Collector
Milepost 22.73 to mp 32.74		10.01	350.4	0.338	35	47	61	100	0.0047	0.0063	0.0081	0.0133	A	A	A	A	Major Collector
FAR-3262					UDOT 2006 AADT												
Milepost 0.00 to mp 8.12		8.12	4141.2	3.993	510	688	884	1457	0.0680	0.0917	0.1179	0.1943	A	A	A	A	Major Collector
FAR-3268					UDOT 2006 AADT												
Milepost 0.00 to mp 2.58		2.58	51.6	0.050	20	27	35	57	0.0027	0.0036	0.0047	0.0076	A	A	A	A	Major Collector
Milepost 2.58 to mp 13.26		10.68	1441.8	1.390	135	182	234	386	0.0180	0.0243	0.0312	0.0515	A	A	A	A	Major Collector
		278.4428	103871.3	100.154													

* Assumed Capacity of 7,500 for Collectors and 12,000 for Arterials for LOS "C"
+ Assumed V/C ratio of = 0.8 as LOS A, = 0.8 as LOS B, =1.0 as LOS C, and >1.0 as LOS D-F

Percentage VMT
Arterials - 68.817%
Collectors - 31.183 %

2.8 Traffic Accident Data

Reported accident information, on selected roadway segments, was obtained from the UDOT Division of Traffic and Safety for the years 2003 through 2005. The data for the 2006 year was not yet available when the data was gathered.

The following are the intersections or roadway segments for which we obtained accident data:

North County Area:

- SR-24 & SR-72 intersection: No reported accidents for the 3 year period.
- SR-24 & 300 South: No reported accidents for the 3 year period.
- SR-24 at the Lyman Curve: No reported accidents for the 2003 and 2004 years. 1 reported accident for the 2005 year. This accident was a single vehicle running into a fixed object.
- SR-72 from milepost 0.00 to milepost 11.01

South County Area:

- SR-24 & SR-12 intersection: No reported accidents for the 3 year period.

On this segment of roadway there have been 4 reported accidents for 2003, 2 reported accidents for 2004, and 1 reported accident for 2005.

Three of the four accidents that were reported in 2003 involved single vehicles that hit a fixed object. The other accidents involved three cars with one car hitting a sign post and then hitting two parked cars.

Both reported accidents in 2004 involved single vehicles that hit a fixed object.

The one reported accident in 2005 involved two cars traveling in opposite directions, one car heading straight and the other turning left.

Accident rates for specific roadways are reported in **Table 4**. Accident rates for intersections and roadways are normally expressed in annual accidents per million vehicle miles of travel. A few accidents on a road with little traffic may result in a high accident rate. Three areas have higher than anticipated accident rates.

In addition to the accident data obtained from the state, the county also provided accident data for the 3 year period. The information is displayed on the proposed master plan map. This data shows locations that have a high frequency of crashes and recommendations for these areas are included in the recommendations section of this report.

Table 5 – Roadway Segment Accident Rates

	Data from UDOT					
Intersection	**From:**	**To:**	**Total Accidents (2003-2005)**	**3 Year Ave.ADT**	**Length (miles)**	**Annual Accidents per 100 million vehicle miles**
SR-24 at SR-72, Loa	Milepost 51.71	Milepost 51.77	0	1087.5	.06	0.00
SR-24 at 300 South,	Milepost 52.63	Milepost 52.69	0	1705	.03	0.00

Loa						
SR-24 at SR-12, Torrey	Milepost 69.84	Milepost 69.9	0	970	.06	0.00
	Data from UDOT					
Roadway	**From:**	**To:**	**Total Accidents (2003-2005)**	**3 Year Ave.ADT**	**Length (miles)**	**3 Year Ave. Annual Accidents per 100 million vehicle miles**
SR-24	Milepost 56.21	Milepost 56.69	1	1420	0.48	133.99
SR-72	Milepost 0.00	Milepost 11.01	7	344	11.01	168.66

The actual and expected crash rate values for SR-24 at the Lyman Curve are: 3 Year Average Actual Crash Rate=1.18, 3 Year Average Expected Crash Rate=1.90. The actual and expected severity rate values for SR-17 are: 3 Year Average Actual Severity Rate = 1.00, 3 Year Average Expected Severity Rate = 1.72. The actual crash rate value is below the expected crash rate value as is the actual severity rate is below the expected severity rate.

The actual and expected crash rate values for SR-72 from milepost 0.00 to milepost 11.01: 3 Year Average Actual Crash Rate=1.64, 3 Year Average Expected Crash Rate=2.32. The actual and expected severity rate values for SR-17 are: 3 Year Average Actual Severity Rate = 2.58, 3 Year Average Expected Severity Rate = 1.81. The actual crash rate value is below the expected crash rate value as is the actual severity rate is above the expected severity rate. This is because 4 of the 7 accidents, for the three year period, had some type of injury associated with the accident.

Accident Rate is a means in traffic engineering, used by UDOT, to gauge drivers' exposure to accidents. UDOT compares the actual accident rate verses the expected rate, which is the five year average of accident rates for the last five years of available data. Severity rate is a measure of the seriousness of an accident, with #1 being property damage only, going all the way to #5, which is a fatality. Both the accident rate and the severity index are the best indicators of how well or how bad an intersection or segment of roadway is performing with regards to safety.

2.9 Revenue Sources

Funding for the maintenance and construction of the existing transportation facilities comes primarily from revenue sources that include the Wayne County general fund, federal funds, transportation impact fees, and State Class C funds. Funding for local transportation projects consists of a combination of federal, state and local revenues. However, this total is not entirely available for transportation improvement projects since annual operating and maintenance costs must be deducted from the total revenue. In addition, the County is limited in the ability to subsidize the transportation budget from general fund revenues.

2.9.1 State Class B and C Program

The distribution of Class B and C Program monies is established by state legislation and is administered by the State Department of Transportation. Revenues for the program are derived from state fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. Seventy-five percent of the funds derived from the taxes and fees are kept by the Utah Department of Transportation for their construction and maintenance programs. The remaining twenty-five percent is made available to counties and cities.

Class B and C funds are allocated to each city and county by a formula based on population, road mileage, and land area. Class B funds are given to counties, and Class C funds are given

to cities and towns. **Table 6** below identifies the method used to allocate B and C funds.

Table 6 – Apportionment Method of Class B and C Funds

Based on	Of
50%	Roadway Mileage
50%	Total Population

Class B and C funds can be used for maintenance and construction of highways; however thirty percent of the funds must be used for construction or maintenance projects that exceed $40,000. Class B and C funds can also be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds.

2.9.2 Federal Funds

Federal funds are available to cities and counties through the federal aid program. The funds are administered by the Utah Department of Transportation. In order to be eligible, a project must be listed on the five-year Statewide Transportation Improvement Program (STIP).

The Surface Transportation Program (STP) provides funding for any road that is functionally classified as a collector street or higher. STP funds can be used for a range of projects, including rehabilitation and new construction. Fifty percent of the STP funds are allocated to urban and rural areas of the state based on population. Thirty percent can be used in any area of the State at the discretion of the State Transportation Commission. The remaining twenty percent must be spent on highway safety and enhancement projects. Transportation enhancements include ten categories, some of which are historic preservation, bicycle and pedestrian facilities, and water runoff mitigation.

The amount of money available for projects specifically in the study area varies each year depending on the planned projects in UDOT's Region Four. As a result, federal aid program money is not listed as part of the study area's transportation revenue.

2.9.3 Local Funds

Wayne County, like most cities, has used general fund revenues in its transportation program. Other options available to improve the County's transportation facilities could involve some type of bonding arrangement, either through the creation of a redevelopment district or a special improvement district. These districts are organized for the purpose of funding a single, specific project that benefits an identifiable group of properties. Another source is through general obligation bonding arrangements for projects felt to be beneficial to the entire entity issuing the bond.

2.9.4 Private Sources

Private interests often provide sources of funding for transportation improvements. Developers construct the local streets within the subdivisions and often dedicate right-of-way and participate in the construction of collector or arterial streets adjacent to their developments. Developers can also be considered as a possible source of funds for projects because of the impacts of the development on the county. Some of these impacts include the addition of traffic signals and/or street widening.

3 FUTURE GROWTH

3.1 Land Use and Transportation

Coordination between land use and transportation is critical for the future development of Wayne County. Street classification and development can guide both desirable and undesirable land uses. The same holds true for land use development. Land use development without transportation planning may result in roadways being classified in opposition to the overall goals of the transportation plan. Therefore, it is imperative that the goals of land use and of transportation are coordinated with each other to support and augment rather than oppose each other.

The Wayne County future land use plan identifies areas for growth and non-growth. The new developing residential areas will have the greatest impact on the transportation system because of daily trip traffic. The projected growth for Wayne County will be primarily residential with commercial to support the residential.

Traffic data from selected roadway segments on SR-24, SR-12, SR-72, and SR-95, gathered by UDOT from the AADT History published by UDOT, was used to calculate a traffic growth rate for each roadway section. The average of all the growth rates was calculated and a growth rate of 5.0 percent was used to forecast the future traffic volumes for the study roadways. This growth rate was discussed and approved by UDOT. The spreadsheet showing the traffic growth rate is found in **Appendix 4**.

3.2 Roadway Network and Traffic Forecast

Existing traffic volumes shown in **Figure 4** were grown at 5.0 percent annual rate for five, ten and twenty years to determine the future traffic volumes on Wayne County roadways. **Figure 4** also shows the 2027 forecast ADT, LOS, Functional Classification for the study roadways. Spreadsheets showing the VMT, LOS, and Roadway Functional Classification are found in **Appendix 5**.

3.2.1 Operational Characteristics

A LOS analysis of the future roadway network was conducted for each of the horizon years in order to evaluate future operational needs. The analyses indicate that all of the study roadways will operate at LOS A for the 2012, 2017, and 2027 conditions.

3.3 Future Wayne County Roadway System

Roadway projects are selected based on the analysis provided in the previous sections. The recommended system includes projects that were determined to have geometric issues, safety issues, or in need of additional capacity. The recommendations are shown in terms of functional classifications. Existing roadways that can be enhanced are preferred in this plan over creating new alignments through undisturbed land. The following types of roadways are included in the recommendations:

- Arterial
- Collector
- Minor Collector

Appendix 1 shows the Proposed Future Roadway System. These figures are schematic in nature and do not show actual road alignments or curves. The focus of the plan is arterial, major collector and minor collector roadways. No detail is shown for the residential and local

roadways to allow flexibility as development occurs between the collectors. It is the intention of the plan for side road collectors to be spaced no closer that one-quarter mile. Minimum acceptable traffic signal spacing on a minor arterial is typically one-quarter mile, but varies based on the UDOT classification of the roadway. At some locations, additional right-of-way may be necessary on roadways above and beyond what is shown on the Proposed Future Roadway System Map to accommodate for future auxiliary lanes, such as acceleration, deceleration, and turn lanes.

Frontage roads (or access roads) are an important element of access control in areas with limited access right of way and plenty of open space. The Frontage roads provide access from collector roadways coming off arterials. This is the best way to allow commercial development frontage on the arterial while limiting access directly on the arterial.

In developing the Proposed Future Roadway Map, discussions and meetings were held with the steering committee to obtain their thoughts and give direction for the plan.

3.3.1 UDOT's Statewide Transportation Improvement Program

UDOT's **S**tatewide **T**ransportation **I**mprovement **P**rogram (STIP) is a five-year plan of highway and transit projects for the State of Utah. The STIP is maintained daily and includes transportation projects on the state, city and county highway systems as well as projects in the national parks, national forests and Indian reservations. These projects use various federal and state funding programs.

UDOT has programmed funds in the Statewide Transportation Improvement Plan (STIP) for the following roadways in Wayne County:

- SR-24; Sulphur Creek Bridge Replacement
- SR-24; Fremont River Bridge Rehabilitation
- Capitol Reef National Park; Scenic Drive Asphalt Pavement Rehabilitation

3.3.2 Traffic Signal Needs

A traffic signal needs study should be conducted for all new proposed signals for the base year. If the warrants are not met for the base year, they should be evaluated for each year in the five-year horizon. Traffic signal needs studies should be conducted by a method pre-approved by the County and address the following:

- **Speed Considerations**

  Vehicle speed is used to estimate safe stopping and cross corner sight distances. In general, the posted speed limit represents the 85th percentile speed. The design speed of the roadway should be used to calculate safe stopping and cross corner sight distances.

- **Improvement Analysis**

  The roadways and intersections within the study area should be analyzed, with and without the proposed development, to identify any projected impacts in regard to LOS and safety.

  Where the highway will operate at LOS C or better without the development, the traffic impact of the development on the roadways and intersections within the study area

should be mitigated to LOS D for arterial and collector streets and LOS C on all other streets during peak hours of travel. Mitigation to LOS D on other streets may be acceptable with the concurrence of the County.

3.3.3 Schedule of Intersection Signalization

There are currently no signalized intersections in Wayne County. Based on the growth projections and operational analysis, it is anticipated that there might be a need for a traffic signal at the intersection of SR-24 & SR-12 in Torrey in the near future. Because the majority of the highest ADT roadways in the county are owned by UDOT, more than likely the potential signalized intersections will be on the state highways. These locations are governed by UDOT and the timing and construction of these improvements will be handled by UDOT.

Two ways exist to improve operations at stop controlled intersections. First, four-way stop control is used to improve operations at intersections with equal traffic volumes on all approaches. Two-way stop control is used at intersections with roadways that carry higher volumes in a single direction(s). Second, signalization is used to improve operations of intersections where two legs have the majority of traffic, but traffic is high on the opposing two legs.

3.3.4 Special Intersection Considerations

The intersection of SR-24 & SR-72 will need to be reconfigured. It is proposed that SR-72 will be rerouted to connect to SR-24 between Loa and Lyman as shown on the proposed plan map. This will reduce the amount of traffic that uses the east leg of the intersection. The north leg of this intersection should also be disconnected and made into a cul-de-sac. This will eliminate the awkward intersection that currently exists where SR-24 and SR-72 intersect. The planned reconfiguration of SR-72 will require improvements to the intersection near 1100 East, where it currently takes a sharp bend to the west.

The intersection of SR-24 and the goosenecks turnoff in Capitol Reef National Park will need to be reconfigured. Currently there is insufficient sight distance at the intersection. The roadway leading to the goosenecks will be realigned to the west and the intersection will be placed several hundred feet to the west utilizing the old roadway location and connecting back into SR-24.

4 TRANSPORTATION GUIDELINES AND POLICIES

Wayne County may require a Traffic Impact Study (TIS) for any new development when the following guidelines indicate that a TIS is needed. The following sections are to be used to establish uniform guidelines for when a TIS is required and how the study is to be conducted, based on suggested guidelines established by the Institute of Transportation Engineers (ITE).

A TIS is a specialized study of the impacts that a certain type and size of development will have on the surrounding transportation system. It is specifically concerned with the generation, distribution, and assignment of traffic to and from the “new development”. The term “new development” also includes properties that are being redeveloped.

4.1 TIS Requirements

A complete TIS shall be performed if any of the following situations are proposed:

- All new developments or additions to existing developments, which are expected to generate more than 100 new peak hour vehicle trips

- In some cases, a development that generates less than 100 new peak hour trips should require a TIS if it affects local "problem" areas. These would include high accident locations, currently congested areas, or areas of critical local concern
- All applications for rezoning when there is a significant increase in traffic volume
- All applications for annexation
- Any change in the land use of density that will change the site traffic generation by more than 15 percent, where at least 1000 new peak hour trips are involved.
- Any change in the land use that will cause the directional distribution of site traffic to change by more than 20 percent.
- When the original TIS are more than 2 years old, access decisions are still outstanding, and changes in development have occurred in the site environs.
- When development agreements are necessary to determine "fair share" contributions to major roadway improvements.

The specific analysis requirements and level of detail are set forth in the following sections.

4.1.1 Category I

A Category I TIS should be required for all developments which generate one hundred (100) or more new peak hour trips, but less than five hundred (500) trips, during the morning, afternoon or Saturday peak hour. Peak hour trips will be determined by the latest edition ITE *Trip Generation* Manual. In addition to the above threshold requirements, a Category I TIS may also be required by the City for any specific traffic problems or concerns such as:

- Proposed or existing offset intersections,
- Situation with a high number of traffic accidents,
- Driveway conflicts with adjacent developments,
- Nearby intersections that have reached their capacity,
- Proposed property rezones when there is a significant potential increase in traffic volumes, and
- When the original TIS is more than two years old, or where the proposed traffic volumes in the original TIS increase by more than twenty percent.

For a Category I TIS, the study horizon should include the opening year of the development, and build-out of the entire development, if applicable. The minimum study area should include site access drives, affected signalized intersections and major unsignalized street intersections.

4.1.2 Category II

A Category II TIS should be required for all developments, which generate from five hundred (500) to one thousand (1,000) peak hour trips during the morning, afternoon or Saturday peak hour. The study horizon should include the opening year of the development, year of completion for each phase of the development, if applicable, and five years after the development's completion. The minimum study area should include the site access drives and all signalized intersections and major unsignalized street intersections within one-half mile of the development.

4.1.3 Category III

A Category III TIS should be required for all developments, which generate above one thousand (1,000) peak hour trips during the morning, afternoon or Saturday peak hour. The study horizon shall be for the year of completion for each phase of the development, the year of its completion, five years after the development's completion and ten years after the development's completion. The minimum study area shall include the site access drives and all signalized intersections and major unsignalized street intersections within one-half mile of the development.

4.1.4 Initial Work Activity

A developer, or their agent, should first estimate the number of vehicular trips to be generated by the proposed development to determine if a TIS may be required and if so, to determine the applicable category. The City must give concurrence on the number of trips to be generated by the proposed development. The developer may, if desired, request that the County assist in estimating the number of trips for the purpose of determining whether a TIS is required for the proposed development.

The County or designated representative shall make the final decision on requiring a TIS and determining whether the study falls within Category I, II or III.

If a study is determined to be required by the County, the developer should prepare for submittal to the County, for review and approval, a draft table of contents for the TIS. The table of contents will be sufficiently detailed to explain the proposed area of influence for the study, intersections and roadways to be analyzed, and level of detail for gathering of traffic volume information and preparation of level of service analyses. There should also be included in the draft a proposed trip distribution for site traffic. After approval of the draft table of contents and trip distribution by the County, the actual TIS work activities may begin.

The Traffic Impact Study Scope of Work agreement between the developer and his/her traffic engineer should conform to the pre-approved draft table of contents. The findings, conclusions and recommendations contained within the TIS document should be prepared in accordance with appropriate professional Civil Engineering Canons.

4.1.5 Qualifications for Preparing TIS Documents

The TIS should be conducted and prepared under the direction of a Professional Engineer (Civil) licensed to practice in the State of Utah. The subject engineer should have special training and experience in traffic engineering and be a member of the Institute of Transportation Engineers (ITE). The final report shall be sealed, signed and dated.

4.1.6 Analysis Approach and Methods

The traffic study approach and methods should be guided by the following criteria:

4.1.7 Study Area, Horizon and Time Period

The minimum study area should be determined by project type and size in accordance with the criteria previously outlined. The extent of the study area may be either enlarged or decreased, depending on special conditions as determined by the City. The study horizon years should be determined by project type and size, in accordance with the criteria outlined in Sections 4.1.1 – 4.1.3.

Both the morning and afternoon weekday peak hours should be analyzed, unless the proposed project is expected to generate no trips, or a very low number of trips, during either the morning or evening peak periods. If this is the case, the requirement to analyze one or both of these

periods may be waived by the City.

Where the peak traffic hour in the study area occurs during a different time period than the normal morning or afternoon peak travel periods (for example mid-day), or occurs on a weekend, or if the proposed project has unusual peaking characteristics, these additional peak hours should also be analyzed.

4.1.8 Seasonal Adjustments

When directed by the City, traffic volumes for the analysis hours should be adjusted for the peak season, in cases where seasonal traffic data is available.

4.1.9 Data Collection Requirements

All data should be collected in accordance with the latest edition of the ITE *Manual of Traffic Engineering Studies*, or as directed by the City.

Turning Movement Counts: Manual turning movement counts should be obtained for all existing cross-street intersections to be analyzed during the morning, afternoon and Saturday peak periods (as applicable). Turning movement counts may be required during other periods as directed by the City. Turning movement counts may be extrapolated from existing turning movement counts, no more than two years old, with the concurrence of the City.

Daily Traffic Volumes: The current and projected daily traffic volumes should be presented in the report. If available, daily count data from the local agencies may be extrapolated to a maximum of two years with the concurrence of the City. Where daily count data is not available, mechanical counts will be required at locations agreed upon by the City.

Roadway and Intersection Geometrics: Roadway geometric information should be obtained. This includes, but is not limited to, roadway width, number of lanes, turning lanes, vertical grade, location of nearby driveways, and lane configuration at intersections.

Traffic Control Devices: The location and type of traffic controls should be identified at all locations to be analyzed.

4.1.10 Trip Generation

The latest edition of ITE's Trip Generation Manual should be used for selecting trip generation rates. Other rates may be used with the approval of the City in cases where Trip Generation does not include trip rates for a specific land use category, or includes only limited data, or where local trip rates have been shown to differ from the ITE rates. Site traffic should be generated for daily, AM, PM and Saturday peak hour periods (as applicable). Adjustments made for "pass-by", “diverted-link” or "mixed-use" traffic volumes shall follow the methodology outlined in the latest edition of the ITE Trip Generation Manual or the ITE Trip Generation Handbook. A "pass-by" traffic volume discount for commercial centers should not exceed twenty-five percent unless approved by the City. A trip generation table should be prepared by phase showing proposed land use, trip rates, and vehicle trips for daily and peak hour periods and appropriate traffic volume adjustments, if applicable.

4.1.11 Trip Distribution and Assignment

Projected trips should be distributed and added to the projected non-site traffic on the roadways and intersection under study. The specific assumptions and data sources used in deriving trip distribution and assignment should be documented in the report and reviewed with the City. Future traffic volumes should be estimated using information from transportation models, or applying an annual growth rate to the base-line traffic volumes. The future traffic volumes

should be representative of the horizon year for project development. If the annual growth rate method is used, the City must give prior approval to the growth rate used. In addition, any nearby proposed development projects currently under review by the City ("on-line") should be taken into consideration when forecasting future traffic volumes. The increase in traffic from proposed "on-line" projects should be compared to the increase in traffic by applying an annual growth rate.

If modeling information is unavailable, the greatest traffic increase from either the "on-line" developments, the application of an annual growth rate or a combination of an annual growth rate and "on-line" developments, should be used to forecast the future traffic volumes.

The site-generated traffic should be assigned to the street network in the study area based on the approved trip distribution percentages. The site traffic should be combined with the forecasted traffic volumes to show the total traffic conditions estimated at development completion. A "figure" should be prepared showing daily and peak period turning movement volumes for each traffic study intersection. In addition, a "figure" should be prepared showing the base-line volumes with site-generated traffic added to the street network. This "figure" should be prepared showing the base-line volumes with site-generated traffic added to the street network. This "figure" will represent site specific traffic impacts to existing conditions.

4.1.12 Capacity Analysis

Level of service (LOS) shall be computed for signalized and unsignalized intersections in accordance with the latest edition of the *Highway Capacity Manual*. The intersection LOS should be calculated for each of the following conditions (if applicable):

- Existing peak hour traffic volumes ("figure" required)
- Existing peak hour traffic volumes including site-generated traffic ("figure" required)
- Future traffic volumes not including site traffic ("figure" required)
- Future traffic volumes including site traffic ("figure" required)
- LOS results for each traffic volume scenario ("table" required)

The LOS table should include LOS results for AM, PM and Saturday peak periods, if applicable. The table shall show LOS conditions with corresponding vehicle delays for signalized intersections, and LOS conditions for the critical movements at unsignalized intersections. For signalized intersections, the LOS conditions and average vehicle delay shall be provided for each approach and the intersection as a whole. If the new development is scheduled to be completed in phases, the TIS will, if directed by the City, include an LOS analysis for each separate development phase in addition to the TIS for each horizon year. The incremental increases in site traffic from each phase should be included in the LOS analysis for each preceding year of development completion. A "figure" will be required for each horizon year of phased development.

4.2 TIS Report Format

This section provides the format requirements for the general text arrangement of a TIS. Deviations from this format must receive prior approval of the City.

I. INTRODUCTION AND SUMMARY

1. Purpose of Report and Study Objectives
2. Executive Summary

- Site Location and Study Area
- Development Description
- Principal Findings
- Conclusions
- Recommendations

II. PROPOSED DEVELOPMENT

1. Off-Site Development
2. Description of On-Site Development
   - Land Use and Intensity
   - Location
   - Site Plan
   - Zoning
   - Development Phasing and Timing

III. STUDY AREA CONDITIONS

1. Study Area
   - Area of Significant Traffic Impact
   - Influence Area
2. Land Use
   - Existing Land Use and Zoning
   - Anticipated Future Development
3. Site Accessibility
   - Existing and Future Area Roadway System
   - Traffic Volumes and Conditions
   - Access Geometrics
   - Other as applicable

IV. ANALYSIS OF EXISTINC CONDITIONS

1. Physical Characteristics
   - Roadway Characteristics
   - Traffic Control Devices
   - Pedestrian/Bicycle Facilities
2. Traffic Volumes
   - Daily, Morning, Afternoon and Saturday Peak Periods (as applicable)
3. Level of Service
   - Morning, Afternoon and Saturday Peak Hour (as applicable)
4. Safety

V. PROJECTED TRAFFIC

1. Site Traffic Forecasts (each horizon year)
   - Trip Generation
   - Mode Split
   - Pass-by Traffic (if applicable)
   - Trip Distribution
   - Trip Assignment
2. Non-Site Traffic Forecasting (each horizon year)
   - Projections of Non-site (Background) Traffic (methodology for the projections shall receive prior approval of City)
3. Total Traffic (each horizon year)

VI. TRAFFIC AND IMPROVEMENT ANALYSIS

1. Site Access
2. Capacity and Level of Service Analysis
   - Without Project (for each horizon year including any programmed improvements)
   - With Project (for each horizon year, including any programmed improvements)
3. Roadway Improvements
   - Improvements Programmed to Accommodate Non-site (Background) Traffic
   - Additional Alternative Improvements to Accommodate Site Traffic
4. Traffic Safety
   - Sight Distance
   - Acceleration/Deceleration Lanes, Left-Turn Lanes
   - Adequacy of Location and Design of Driveway Access
5. Pedestrian Considerations
6. Speed Considerations
7. Traffic Control Needs
8. Traffic Signal Needs (base plus each year, in five-year horizon)
9. Site Circulation and Parking

VII. FINDINGS

1. Site Accessibility
2. Traffic Impacts
3. Need for Improvements
4. Compliance with Applicable Local Codes

VIII. RECOMMENDATIONS/CONCLUSIONS

1. Site Access/Circulation Plan
2. Roadway Improvements
   - On-Site
   - Off-Site
   - Phasing (as applicable)
3. Transportation System Management Actions (as applicable)
4. Other

IX. APPENDICES

1. Existing Traffic Volume Summary
2. Trip Generation/Trip Distribution Analysis
3. Capacity Analyses Worksheets
4. Traffic Signal Needs Studies
5. Accident Data and Summaries

X. FIGURES AND TABLES

1. The following items shall be documented in the text or Appendices
   - Site Location
   - Site Plan
   - Existing Transportation System
   - Existing Peak Hour Turning Volumes
   - Estimated Site Traffic Generation

- Directional Distribution of Site Traffic
- Site Traffic
- Non-Site Traffic
- Total Future Traffic
- Projected Levels of Service
- Recommended Improvements

(For Category 1, many of the items may be documented within the text. For other categories the items shall be included in figures and/or tables that are legible.)

XI. DESIGN STANDARD REFERENCE

1. Design in accordance with current *Wayne County Standards*.
2. Conduct capacity analysis in accordance with the latest edition of the *Highway Capacity Manual.*

4.3 Roadway Standards

All streets shall be designed to conform to American Association of State Highway and Transportation Officials (AASHTO) standards. The standards outlined in that document can be supplemented by this master plan, AASHTO's *A Policy on Geometric Design of Highways and Streets,* and the MUTCD (Manual on Uniform Traffic Control Devices). In cases of conflict, a determination shall be made by the County, whose determinations shall be final.

Some suggestions for design standards are included in this report to assist the County in their practices. The requirements for the street cross-section configurations are shown in **Table 6.** These requirements are based on traffic capacity design speed, projected traffic, system continuity and overall safety. All new developments shall use street cross-sections with fifty-foot (50') or more of right-of-way. Access to multi-family or commercial development shall use street cross-sections with fifty-five feet (55') or more of right-of-way. Collector roadways shall be a minimum of sixty-six (66') feet of right-of-way. Arterial roadways shall be a minimum of eighty-five (85') feet of right-of-way.

Table 6 - Street Cross-Section Configurations

Classification	Minimum ADT or [D.U.'s]	Traffic Index	Right-of-Way (ft)	Pavement Width[1] (ft)	Sidewalk Width/Shoulder Width (contiguous feet)
Minor Collector	200 to 650 [20 to 65]	5.5	66	39	5
Major Collector[2]	650 to 1,800 [66 to 180]	6	66	51	5
Major Arterial[2]	>1,800 [>180]	7	85	68	6

NOTES:
* See Wayne County Ordinances for applicable grades.
1. Pavement width measured from edge of asphalt to edge of asphalt.
2. Configuration of major collector and higher classifications may be adjusted with proper justification and approval of County.
3. The minimum right-of-way and pavement width is shown. Each may be increased when required by a traffic impact study.

4.4 Safe Transportation System

A goal of Wayne County is to maintain a safe transportation system. This should be a high priority and the County should work diligently to meet applicable safety standards. This can be best accomplished by the following recommendations.

- Require all major developments to provide adequate access for emergency vehicles.
- Provide safe pedestrian street crossings, particularly near schools and recreation areas.
- Encourage development of school routing and recreation plans that minimize vehicle/pedestrian conflicts.
- Establish speed limits based on traffic engineering analysis. Enforce speed limits, especially near schools, in residential areas and downtown commercial areas.
- Provide guidance for vehicles on streets through striping, raised medians and islands, reduction of roadside obstructions, and other traffic engineering solutions.
- Require all roadway features to meet minimum design standards established by the *American Association of State Highway and Transportation Officials* (AASHTO). All signs, pavement markings and traffic signals must meet standards established by the *Manual of Uniform Traffic Control Devices* (MUTCD). Exceptions can be granted by the County on a case-by-case basis for those designs that demonstrate innovative superiority over the existing standards.

- Maintain optimal walkway conditions for walking, wheelchairs and strollers by:
  - Repairing cracks and bumps
  - Minimizing slopes
  - Maintaining visibility at corners
  - Avoiding abruptly ending walkways
  - Reducing speed and traffic
  - Keeping walkways clear of poles and other objects
  - Avoiding poor drainage and standing water on sidewalks
  - Providing curb cuts and ramps that comply with the Americans with Disabilities Act (ADA)
  - Provide adequate emergency access and/or turnarounds on all dead-end streets or cul-de-sacs

4.5 Roadway Network Design

New roadway networks shall be designed in accordance with the general planning concepts, guidelines, and objectives provided in this section. The “Quality of Life” for residents should be a primary concern when designing a residential roadway network with safety as the overriding factor in design. An emphasis on proper street hierarchy should be adhered to, namely, local streets should access collectors; collectors should access arterials; etc. An emphasis on access management should provide careful control of the location, design, and operation of all driveways, median openings, and street connections to a roadway. For more information on access management, refer to the Access Management section of this document.

Residential streets should be designed in a curvilinear method in order to reduce or eliminate long straight stretches of residential roadways, which encourage speeding and cut-through traffic. Substantial increases in average daily traffic due to development on adjacent property on established streets not originally designed to accommodate such increases should be avoided.

Drainage methods should concentrate on meeting the drainage needs while not impeding the movement of traffic. Roads should be designed to lie within existing topographic features without causing unnecessary cuts and fills.

A reduction in the use of cul-de-sacs should be emphasized in order to provide greater traffic circulation. Cul-de-sacs should only be allowed where topography and/or natural barriers prohibit the design of through streets. Circulation is of the utmost importance; long blocks and excessive dead-end streets should be avoided. Stopping sight distance must be considered at all intersections and curves to ensure the safety of the public, in accordance with AASHTO standards. Pedestrian and bicycle traffic should be considered in the planning and design of all developed streets.

Roadways should be planned to accommodate the traffic demand associated with adjoining developments and commercial areas. The capacity County of these roadways can be established by following LOS criteria that has been established by various governmental agencies across the country. **Table 4** shows the LOS thresholds for various roadway types.

4.6 Improvement Requirements

All improvements, including but not limited to the following, shall be constructed in accordance with standard specifications and drawings unless otherwise approved.

- Required curb, gutter and sidewalk shall be constructed only in areas that are designated by the county for these improvements
- Driveways shall be constructed in approved locations only.
- All streets, public or private, shall be surfaced to grade, with asphalt concrete pavement to the required minimum width and thickness
- No cross gutters shall be allowed across major collector or major and minor arterial streets. On commercial and industrial streets, cross gutters are generally not allowed and require approval by the County for use.
- When new construction occurs in areas with curb, gutter, and sidewalk, handicap ramps shall be constructed at all street intersections, unless otherwise approved, in accordance with the standard practices. In addition, when a project occurs where existing improvements are in place, handicap ramps shall be upgraded to meet current standards.
- Raised medians on public roadways shall be approved by the County. Design and construction shall be in accordance with applicable standards.
- Developments shall construct the minimum number of accesses needed to adequately address the needs of the development and only at approved locations.
- Adequate drainage facilities shall be installed to properly control runoff from the roadway. Sub-drains and surface drainage facilities shall be designed in accordance with the approved drainage study.

The above required improvements are not all inclusive. Other improvements needed to complete the development in accordance with current engineering and planning standard practice may be required by the County.

5 SHORT TERM TRANSPORTATION IMPROVEMENT PLAN (TIP)

- SR-24 & SR-72 intersection relocation; this intersection is currently a five-legged intersection. SR-24 and the extension of Main Street both converge from the north at this intersection. In order to eliminate the safety concerns for this intersection, it recommended that the county road (or extension of Main Street) be closed at the south end where it connects to the intersection. SR-72 will remain in its current location but will be designated as a local road not SR-72. The continuation of SR-72 around 500 North will be to the south intersecting with SR-24 half way between Loa and Lyman at around 1100 East.

- SR-24 & 675 East Teasdale Entrance; construct a left turn pocket/deceleration lane on SR-24 at MP 66.7 to facilitate the westbound traffic wanting to turn left to go to Teasdale.

- SR-24 & Hatchery Road intersection; construct turn/deceleration lanes to accommodate turning vehicles. This intersection is located on a curve and addition of superelevation to the roadway or flattening the curve would improve the overall operation.

- SR-24 & West Aspen Ranch access; construct westbound left turn lane and eastbound right turn lane with deceleration lanes to facilitate turning vehicles.

- SR-24 & Goosenecks Turnoff; relocate the intersection to the west by constructing a few hundred feet of pavement following the old highway alignment and create a new intersection with SR-24. The new intersection will be located approximately 1,000 feet to the west and will be a better location for sight distance.
- SR-24 & 1100 East intersection in Loa; construct eastbound and westbound left turn/deceleration lanes to facilitate turning vehicles and accommodate the rerouting of SR-72.
- River View Road south of Torrey has several bad curves and alignment problems that need to be addressed in the short term plan.
- 1100 East & 500 North intersection in Loa; this intersection is currently a two-way stopped controlled intersection for the westbound and northbound directions. This is due to the fact that the north and west legs of the intersection comprise SR-72. There is a bad sight distance issue at this intersection for the southbound vehicle that wants to go straight through the intersection. This intersection should be moved to the east to line up with 1100 East and eventually become a 2-way stop controlled intersection to accommodate the rerouting of SR-72 to the south.
- Pullouts along SR-24 in Capitol Reef National Park; as part of this plan, some meetings were held with the park service about SR-24 through the park. The outcome of those meetings yielded a plan that provides for pullout locations along SR-24 between the west park entrance and the visitors center. There are approximately 8 defined locations as part of that plan and the improvements being suggested are enhancement to some existing pullouts and creation of other new pullouts. The county should work with the park service and UDOT to collectively gather resources to complete this project.

- There are shoulder width and clear zone deficiencies throughout the park. Paved shoulder widths range around two feet. Beyond the paved shoulder the terrain slopes severely in many locations, and there are cliffs and drop offs in others. It is recommended that the county work with UDOT and the park service to widen the shoulders of SR-24 through the park as current conditions are unsafe. As these issues were brought up in the meetings that were held with the park service they were met with some hesitation on the part of the park service. Their thoughts were that widening the shoulders would detract from the scenic nature of the park. The county should continue to work with UDOT and the park service to improve roadside safety conditions along SR-24 through the park.
- Pedestrian and Bicycle Master Plan for entire county; it was suggested in some of the public meetings that bicycle and pedestrian traffic is increasing in the county and there are limited provisions to accommodate it. Especially in Torrey where there are no facilities to provide refuge from the vehicular traffic. It is recommended that the county develop a countywide plan and start in Torrey to address the immediate needs. This plan can be developed under the direction of a Task Force.
- Torrey Main Street Enhancement; during the tourist season there are lots of pedestrians that walk along the roadway to get to the hotel, stores, and eating establishments. It is recommended that the county work with Torrey Town to apply for enhancement monies from the state that can help fund necessary improvements such as curb, gutter, sidewalk, lighting, etc.
- Existing SR-72 Horizontal Alignment; there are several sharp curves on SR-72 in Fremont that need to be flattened out, which will require some R/W and environmental work.
- Consider developing an impact fee system for roadways to assess impacts of development on the overall roadway network.
- Update this master plan every 5 years or as frequent as possible to assist with development pressures and provide updated tools for county staff.
- Continue a routine chip seal maintenance program for old asphalted roads to keep them in good working condition.
- Construct as many minor roadway improvements as possible as shown on the attached roadway plan.
- Implement a process where the planning commission and county commission refer to this document as part of the development process and approvals. This will ensure that all decisions that are made follow the plan and the vision created by the plan.

6 LONG TERM TRANSPORTATION IMPROVEMENT PLAN (TIP)

- The road that heads south out of Loa at the sharp curve and heads southeasterly has several bad curves and will need to be repaired in the future with the increase of future traffic on this road.
- Federal Aid Route 3268 Bridge; Reconstruct the bridge and roadway in Fremont on Federal Aid Route 3268 just north of SR-72. This is a bad corner and the bridge is very

narrow. There has been a rollover and some accident history at this location that suggest a need for improvement.

- Most of the new proposed corridors and realigned roadways on the roadway plan will fall in this category – specific projects that are more relevant to quickly developing areas need to be addressed first after which the remainder can be done.

7 ACCESS MANAGEMENT

This section will define and describe some of the aspects of Access Management for roadways and why it is so important. Access management is the practice of coordinating the location, number, spacing and design of access points to minimize site access conflicts and maximize the traffic capacity of a roadway. Uncoordinated growth along some of the region's major travel corridors has resulted in strip development and a proliferation of access points. In most instances, each individual development along the corridor has its own access driveway. Numerous access points along the corridor create conflicts between turning and through traffic which causes delays and accidents.

Though Access Management is generally used on roads that are larger and have more volume, it can have impacts on those roads that are defined as residential as well.

7.1 Definition

Access management involves providing (or managing) access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity, and speed. (Source: Policy on the geometric Design of highways and Streets, AASHTO, 2001).

7.2 Access Management Techniques

There are many techniques that can be used in access management. The most common techniques are signaling spacing, street spacing, access spacing, and interchange to crossroad access spacing. There are various distances for each spacing, dependant upon the roadway type being accessed and the accessing roadway. The Utah Department of Transportation has developed an access management program. More information can be gathered from the UDOT website and from the Access Management Program Coordinator.

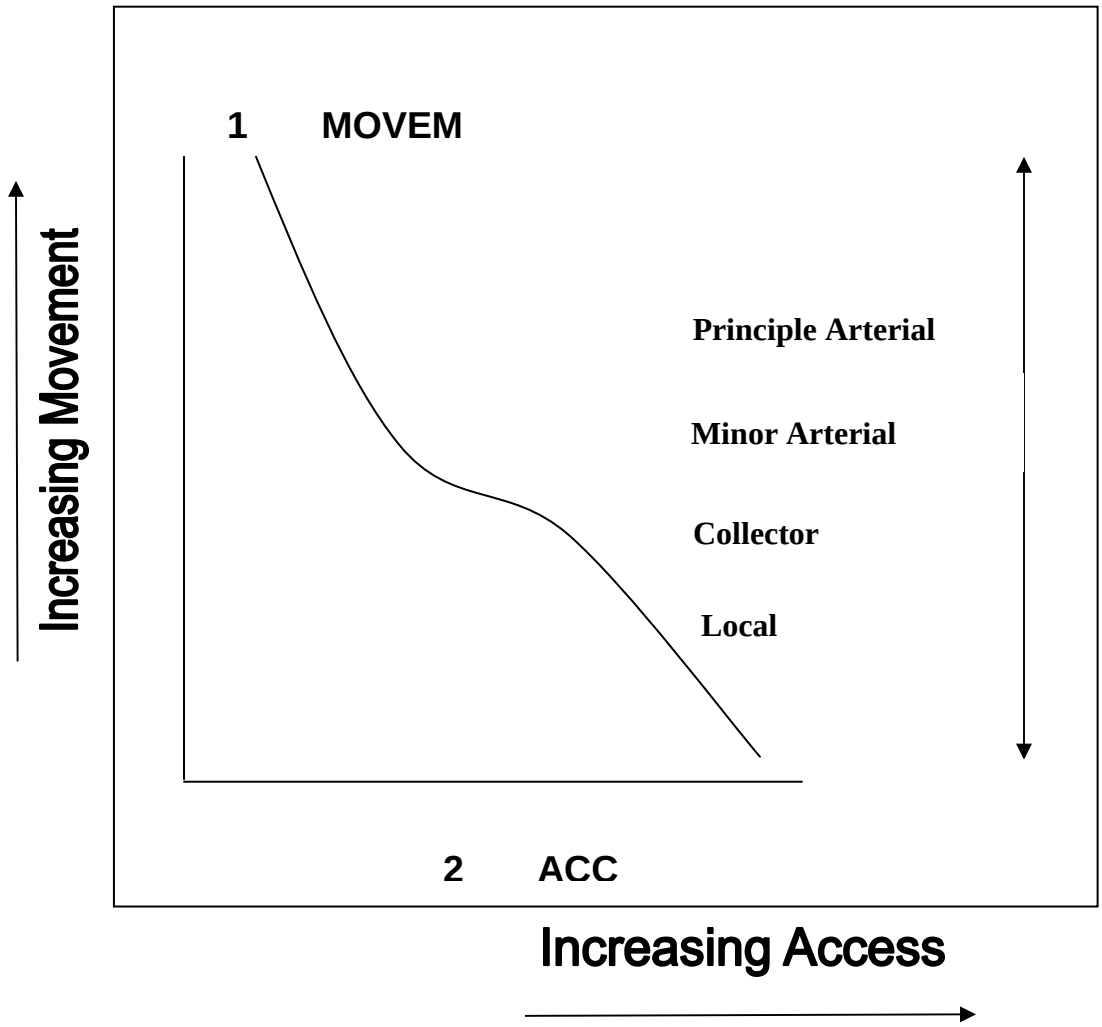
7.3 Access Management

Access management is the process in which access is provided from the street network to adjacent land development while preserving traffic flow on the roadway system. Safety, capacity, and speed are determining factors on how land development is accessed by a roadway. Managing access is achieved by controlling the location, design, and operation of driveways, median openings, and street connections. In addition, auxiliary lanes (turn lanes or by-pass lanes) are also used to divert traffic out of the through traffic stream to improve the traffic flow and improve safety.

Roadways are classified for access control based upon their importance to local and regional mobility. No facility can move traffic well and provide unlimited access at the same time. **Figure 5** shows the relationship between mobility, access and the functional classification of streets. For example, the strictest access control is applied to roadways that serve through traffic or regional trips. The least access control is given to local streets and residential areas

that serve local traffic and short trips. In many cases, accident s and congestion are the result of streets trying to serve both mobility and access at the same time.

Figure 5. Access vs. Mobility



7.3.1 Benefits of Access Management

A good access management program will accomplish the following:

- Limit the number of conflict points at driveway locations
- Separate conflict areas
- Reduce the interference of through traffic

- Provide sufficient spacing for at-grade, signalized intersections
- Provide adequate onsite circulation and storage.

The American Association of State Highway and Transportation Officials (AASHTO) states "the number of accidents is disproportionately higher at driveways than at other intersections…thus their design and location merits special consideration." Fewer direct accesses, greater separation of driveways, and better driveway design and location are the basic elements of access management. With good access management, the following are some of the recognizable benefits:

- Improving overall roadway safety
- Reducing the total number of vehicle trips
- Decreasing interruptions in traffic flow
- Minimizing traffic delays and congestion
- Maintaining roadway capacity
- Extending the useful life of roads
- Avoiding costly highway projects
- Improving air quality
- Encouraging compact development patterns
- Improving access to adjacent land uses
- Enhancing pedestrian and bicycle facilities

7.3.2 General Access Management Principles

The following access management guidelines and policies shall be adhered to within Wayne County.

- Conflicts at intersections and driveways should be separated and the number reduced as much as possible.
- A "time-space" perspective should guide (a) the location, timing, and coordination of traffic signals; (b) the placement of access; and (c) the design and operation of intersections. Optimum progressive travel speeds along arterial roadways should be determined and maintained.
- Signal cycles should be as short as possible but consistent with capacity, pedestrian clearance, and coordination requirements. A cycle length range of 60 to 120 seconds is appropriate. Cycle lengths should not exceed 150 seconds.
- Unsignalized access should be located so as not to interfere with queues or maneuvering areas of signalized intersections and positioned to take advantage of gaps in, or less dense, traffic flows.
- Interference between through traffic and site traffic should be addressed by incorporating additional traffic lanes to accommodate turning vehicles and through vehicles. Adequate on-site storage and driveway dimensions should be designed to accommodate the traffic demand entering and exiting the site. Fewer, properly placed, and adequately designed driveways are preferable to a larger number of inadequately designed driveways,

especially when spaced at least 500 feet apart. In all cases, the integrity of mainline traffic operations must not be compromised.

7.3.3 Number of Access Points

Controlling the number of access points or driveways from a site to a roadway reduces potential conflicts between vehicles, pedestrian, and bicycles. Each parcel should normally be allowed one access point, and shared accesses are preferred where possible.

7.3.4 Signalized Intersections

Uniform or near uniform spacing of signals is essential for efficient traffic flow. As a minimum, signals should be spaced no closer that one-quarter mile (1,320 feet).

7.3.5 Unsignalized Driveways

Unsignalized driveways are much more common than signalized driveways. Sound traffic engineering criteria indicates that 500 feet or more should be provided between full movement unsignalized accesses.

7.3.6 Right-In/Right-Out Accesses

Restricted access movement can provide for additional access to promote economic development with minimal impact to the facility. This type of access should be spaced to allow for a minimum of traffic conflicts and provide distance for deceleration and acceleration of traffic in and out of the access.

7.3.7 Residential Lots

The number of accesses on residential lots shall be based on the following:

- Number of Driveways: Non residential lots shall not have more than two (2) driveways, unless approved by the City Engineer.
- Distance, width: No driveway shall be closer than 12 feet to another driveway nor be more than 32 feet in width, unless approved by the City Engineer. In no event shall the combined width of such driveways exceed 46 feet or 50% of the entire lot frontage, whichever is less.
- Corner Lots: In not event shall a driveway be placed on any corner lot within the distance of twenty 25 feet from the point of the intersection of property lines nearest the intersection, whichever is further from the intersection.

7.3.8 Commercial Lots

Commercial lots or developments are not limited to one per lot and should be addressed on a case-by-case basis but not to exceed the access frontage requirements listed in the next sections. Additional accesses must be approved by the City upon completion of a circulation plan or Traffic Impact Study provided to the City indicating that more than one access is required to adequately handle the developments traffic volumes and further indicating that the additional access will not be detrimental to traffic flow on the adjacent street network. Circular driveways are considered one access. If a lot has a circular driveway then only a maximum of one more additional access may be granted.

The spacing requirement based on the functional class of the facility and is shown in the table below.

Table 8 shows the spacing requirements based on the functional class of the roadway facility for street intersection spacing. **Table 9** shows the requirements based on the functional class of the roadway facility for driveway access spacing.

Table 8 – Street Intersection Separation Distances Based on Functional Class

Functional Class	Minimum Signal Spacing (ft)	Minimum Unsignalized Full Movement (ft)	Minimum Right-In/ Right-Out (ft)
Private	1320	150	-
Residential Local	1320	150	-
Residential Standard	1320	150	-
Residential Rural	1320	150	-
Minor Collector	1320	250	150
Major Collector	1320	250	250
Minor Arterial	1320	500	250
Commercial Local	1320	400	200
Industrial Local	2640	500	250

Table 9 – Driveway Access Separation Distances Based on Functional Class

Functional Class	Minimum Full Movement (ft)	Minimum Right-In/Right-Out (ft)
Private	75	-
Residential Local	75	-
Residential Standard	75	-
Residential Rural	75	-
Minor Collector	125	-
Major Collector	250	125
Arterial	660	330
Commercial Local	400	200
Industrial Local	500	250

Access spacing shall be measured for center of access to center of access.

Collector and Arterial roadways will have limited access. Where multiple parcels are consolidated, accesses shall also be consolidated according to City design and spacing standards. Temporary access may be granted to undeveloped property prior to completion of a final development plan if access is needed for construction or preliminary site access. Temporary accesses are subject to removal, relocation, or redesign after final development plan approval.

7.3.9 Offset Distance

Offset distance is the distance from the center of an access to the center of the next access on the opposite side of the road. On undivided roadways, access on opposite sides of the road should be aligned. Where alignment is not possible, driveways should be offset based on the values set in **Table 10** below.

Table 10 – Minimum Offset Distance between Driveways on opposite sides of Road	
Functional Class	Minimum Offset* (feet)
Private	-
Residential Local	-
Residential Standard	-
Residential Rural	-
Minor Collector	150
Major Collector	200
Arterial	600 ft. for speed of 45 or greater, 300 for all other speeds
Commercial Local	200
Industrial Local	220

* Distance in table is measured from center to center of driveway

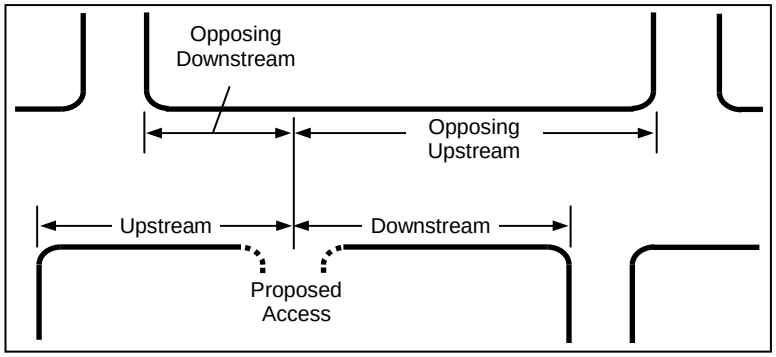
7.3.10 Corner Spacing

Providing adequate corner spacing improves traffic flow and roadway safety by ensuring that the traffic turning into the driveway does not interfere with the function of the intersection. Access to corner lots should be from the lesser-classified road at the greatest distance possible from the intersection, and should not be less than the distances shown in **Table 11**. This distance is measured from the PC (point of curve) of the corner curve. A 25-foot radius is considered the minimum where the existing radius is less than 25 feet.

Table 11 – Access Distance From Corner According to Facility Type		
Facility Type	Upstream Distance on Major Roadway (feet)	Downstream Distance on Major Roadway (feet)
Residential Private	50 [2]	50 [2]
Residential Local	50 [2]	50 [2]
Residential Standard	50 [2]	50 [2]
Residential Rural	50	50
Minor Collector	100	75
Major Collector	175	150
Arterial[1]	200	185
Commercial Local	100	-
Industrial Local	100	-

NOTES:

1. All access points shall be approved by the City. Distances shown may be adjusted by the County on a case-by-case basis. Exceptions can only be approved by the City upon submittal of proper traffic justification.
2. Distances shown are preferred.



7.3.11 Medians

Medians are used to control and manage left turns and crossing movements as well as separating traffic moving in opposite directions. Restricting left turning movements reduces the conflicts between through and turning traffic, resulting in improved safety. Studies have shown that the installation of a non traversable median will reduce crashes by 30% over that of a two way left turn lane (TWLTL).

The need for a median can be identified through an engineering review (a traffic study assessing the impact of a proposed project) and should be considered on any roadway that has a speed limit grater than 40 mph. Medians can improve pedestrian safety by providing a refuge area for the pedestrian.

Medians can also add to the overall aesthetics of a roadway corridor or a development by incorporating landscaping or other items of visual interest. However, care should be taken to maintain sight distance around the intersection/access locations. Ground cover plantings should be planted within 350 feet of an intersection/access opening. Care should be taken to select landscape material that will not intrude into the roadway and to locate materials such that they will not cause a safety problem. Trees should be selected that will not be larger than 4 inches in diameter when mature.

Two way left turn lanes should only be used to retrofit areas of existing development and should be limited to roadways with less than 18,000 ADT. In areas with greater than ADT, consideration should be given to raised median with appropriately spaced median openings. **Table 12** shows typical guidelines for spacing of unsignalized restricted medial openings.

Table 12 – Guidelines for Spacing of Unsignalized Restricted Median Openings

Functional Classification	Spacing of Median Openings (ft)*		
	Urban	Suburban	Rural
Collector	330	500	660
Arterial	500	660	800

*Values are for estimating, exact values shall be based on an engineering study
*Values based on UDOT State Highway Access Management Standards. Table 7.4-1

A 14-foot median is desirable in order to provide for an adequate left turn lane at intersections.

7.3.12 Width of Access Points

In addition to limiting the number of access points, the width of the access point should be restricted based on the use of the site. Residential lot driveways should be limited to a maximum throat width of 32 feet at the back of the dive approach. The maximum width for a commercial or industrial site entrance with two-way traffic should be limited to 44 feet. The width includes 12 feet for right out, 12 feet for left out, 16 feet for an ingress lane, and two-2 foot shoulders. The width of the entrance should be determined based on the type of use for the site, the type of traffic (cars vs. 18 wheel trucks), and the projected volume of traffic.

7.3.13 Turning Radius

The turning radius of a driveway or access road affects both the flow and safety of through traffic as well as vehicles entering and exiting the roadway. The size of the turning radius affects the speed at which vehicles can exit the flow of traffic and enter a driveway. The large the turning radius, the greater the speed at which a vehicle can turn into a site.

The speed of the roadway, the anticipated type and volume of the traffic, pedestrian safety, and the type of use proposed for the site should be considered when evaluating the turning radius. **Table 13** shows the turning radii for accesses based on vehicle type.

Table 13 - Turning Radius at Access Locations

Vehicle Type	Turning Radius
Passenger Cars	15 to 30 feet
18 Wheel Trucks	30 to 50 feet

7.3.14 Throat Length

Throat length is the length of the driveway that is controlled internally from turning traffic, measured from the intersection with the road. Driveways should be designed with adequate throat length to accommodate queuing of the maximum number of vehicles as defined by the

peak period of operation in the traffic study. This will prevent potential conflicts between traffic entering the site and internal traffic flow. **Table 14** shows the minimum driveway throat length at signalized a signalized access.

Table 14 – Minimum Driveway Throat Length at Signalized Accesses

Number of Egress Lanes	Minimum Throat Length
2	75 feet
3	200 feet
4	300 feet

7.3.15 Shared Access

Access points can be shared between adjacent parcels to minimize the potential for conflict between turning and through traffic. Interconnections between sites can eliminate the need for additional curb cuts, thereby preserving the capacity of the roadway. This is particularly important for commercial/industrial sites and should be used to encourage the development of interconnectivity between parcels. Future roadway rights-of-way should also be preserved to promote interconnected access to vacant parcels.

7.3.16 Alignment of Access Points

Accesses represent points of conflict for vehicles, bicycles, and pedestrians. To minimize the potential conflicts and improve safety, intersections and driveways shall be aligned opposite each other wherever possible and roadways intersect at a 90 degree angle.

7.3.17 Sight Distance

Sight distance is the length of the road that is visible to the driver. A minimum safe sight distance should be required for access points based on the roadway classification. It is essential to provide sufficient intersection sight distance at the driveway point for vehicles using a driveway to see oncoming traffic and judge the gap to safely make their movement. Intersection sight distance varies depending on the design speed of the roadway to be entered and assumes a passenger car can turn right or left into a two-lane highway and attain 85 percent of the design speed without being overtaken by an approaching vehicle that reduces speed to 85 percent of the design speed. **Table 15** gives intersection sight distance requirements for passenger cars.

Table 15 – Intersection/Driveway Sight Distance

Posted Speed Limit	Sight Distance Required * (feet)					
	Left Turn			Through and Right Turn		
MPH	2 lanes	3 lanes	5 lanes	2 lanes	3 lanes	5 lanes
30	335	355	375	290	310	335
35	390	415	440	335	365	390
40	445	475	500	385	415	445

45	500	530	565	430	465	500
50	555	590	625	480	515	555
55	610	650	690	530	570	610
60	665	710	750	575	620	665
65	720	765	815	625	670	720

*Driver eye is 15 feet measured from the traveled way

7.3.18 Turning Lanes

Turning lanes remove the turning traffic from the through travel lanes. Left turning lanes are used to separate the left turning traffic from the through traffic. Right turn lanes reduce traffic delays caused by the slowing of turning vehicles. These lanes are generally used in high traffic areas on arterial and collector roadways. A traffic impact study will determine the need for turning lanes or tapers. **Table 16** shows the minimum guidelines for storage length of turning lanes based on speed.

Table 16 – Turning Lanes Storage Length (100 feet minimum)

Intersection	Length
Unsignalized Intersection	2 times the number of cars likely to arrive in a 2 minute period during peak hour*
Signalized Intersection	10% of the peak hour design year volume expressed in feet*

*Assumes 25 feet per vehicle
* 2004 AASHTO Geometric Design of Highways and Streets

Turning lanes shall normally be a minimum of 12 feet in width. Any exception will require approval from the City Engineer. Right turn lanes require an additional 12 feet of pavement to accommodate the lane.

The provision for left turn lanes is important from both capacity and safety perspective, where left turns would otherwise share the use of a through lane. Shared use of a through lane will dramatically reduce capacity, especially when opposing traffic is heavy. Left turn lanes shall be provided at signalized intersections.

Right turn lane remove the speed differences in the main travel lanes. This helps to reduce the number and severity of rear-end collisions. Right turn lanes also increase capacity of signalized intersections and may allow more efficient traffic signal phasing. **Table 17** provides typical warrants, based on posted speed and traffic volumes for when auxiliary lanes are to be installed.

Table 17 – Guidelines for Left Turn and Right Turn Lanes on Two Lane Highways

Minimum levels for installation auxiliary lanes on rural two lane roads

Speed	Left Turn Lane	Right Turn Lane	Right Turn Acceleration Lane	Left Turn Acceleration Lane
40 mph and less	25 vph	50 vph	-	-
45 mph and greater	10 vph	25 vph	50 vph	*

Farm access excluded
* Optional for 50 mph and less; for 55 mph as required by the City Engineer
vph = vehicles per hour in any one hour period in passenger car equivalents

A separate turning lane consists of a taper plus a full width auxiliary lane. Taper length will vary based on speed. A length of 90 feet for speeds below 45 mph, 140 feet for speeds of 45 and 50 mph, and 180 feet for speeds over 50 mph. If a two lane turn lane is to be provided, it is recommended that a 10:1 taper be used to develop the dual lanes. The taper will allow for additional storage during short duration surges in traffic volumes.

7.3.19 Pedestrian and Bicycle Access

All new development and redevelopment of existing sites should address pedestrian and bicycle access to and within the site.

7.3.20 Roundabouts

Several communities in the United States are beginning to embrace the concept of "roundabouts". A roundabout is an intersection control measure used extensively in Europe for many years. A roundabout is composed of a circular, raised, center island with deflecting islands on the intersecting streets to direct traffic movement around the circle. Traffic circulates in a counter-clockwise direction making right turns onto the intersecting streets. There are no traffic signals; rather, entering traffic yields to vehicles already in the roundabout.

Roundabouts can reduce delays because the stop signal phase (when vehicles entering the intersection are unable to move) is eliminated. Roundabouts can also improve safety because the number of potential impact points and the numb of conflict points at a four-way intersection.

Development of a roundabout should occur as a result of an intersection study by a qualified Traffic Engineer and when the minimum capacity and design criteria can be met. The Federal Highway Administration (FHWA) has prepared a design guide for modern roundabouts in the United States. A single-lane roundabout can accommodate up to 1,800 vehicles per hour.

7.3.21 Where to Use Access Management

Access Management shall be used on all roadways within Wayne County. Roadway access management strategies extend the useful life of roads at little or no cost to taxpayers. Access management can be used as an inexpensive way to improve performance on a major roadway

that is increasing in volume. Access management should be used on new roadways and roadways that are to be improved so as to prolong the usefulness of the roadway.

8 TRANSPORTATION CORRIDOR PRESERVATION

This chapter identifies and evaluates techniques that can be used to preserve defined corridors for future transportation facilities.

8.1 Introduction

Several recent research efforts have addressed the issue of corridor preservation. The 1990 Report of the American Association of State Highway and Transportation Officials (AASHTO) Task Force on Corridor Preservation provided an identification and evaluation of various techniques. Subsequent efforts of the Federal Highway Administration (FHWA) and Transportation Research Board (TRB) have added to the literature. Drawing from these documents and a brief review of relevant Utah law, this chapter provides a discussion of potential techniques that may have applicability to Wayne County. A bibliography of the relevant publications is included.

8.2 Definitions

For purposes of this discussion, a "corridor" is defined as "the path of a transportation facility that already exists or may be built in the future". The AASHTO report defines corridor preservation as "a concept utilizing the coordinated application of various measures to obtain control of or otherwise protect the right-of-way for a planned transportation facility". The AASHTO report further defines the objectives of corridor preservation as follows:

- Prevent inconsistent development
- Minimize or avoid environmental, social, and economic impacts
- Reduce displacement
- Prevent the foreclosure of desirable location options
- Allow for the orderly assessment of impacts
- Permit orderly project development
- Reduce costs

8.2.1 Corridor Preservation Techniques

Techniques for corridor preservation fall into the following three major categories: (1) acquisition, (2) exercise of police powers, and (3) voluntary agreements and governmental inducements. The various issues associated with each corridor are unique. Therefore, one preservation technique cannot be recommended as the best for all situations. The purpose of this chapter is to provide a "toolbox" of techniques available, a brief summary of each is provided below.

8.2.2 Acquisition

This technique involves the purchase of fee simple or lesser interests in property to bank or preserve it for the corridor location. This could be accomplished using federal funds or by using state funds where a project would be implemented without federal participation. The use of

state funds could generally be accomplished with more flexibility and fewer requirements. If federal funds are used, or expected to be used for future elements of the project, certain federally required procedures must be followed. Acquisition can be accomplished in the following ways.

8.2.3 Advance Purchase and Eminent Domain

Undeveloped property is acquired, either by direct purchase or eminent domain, and "banked" until needed for construction. Such a method may systematically acquire the entire right-of-way or it may strategically acquire only selected parcels.

Under Utah statutes, acquisition of property by eminent domain is authorized if (a) the use is authorized by law, (b) the taking is necessary for such use, (c) the construction and use of property will commence within a reasonable time, and (d) fair compensation is paid. Fair value must be paid for interests taken and damages which accrue to the remainder of adjacent property not taken (Utah Code Annotated §78-34-1).

Before property may be taken for a corridor the acquiring agency must identify the corridor location, general route and termini. If the acquiring agency, without reasonable justification, does not commence or compete construction and use of a roadway within the corridor within the time specified, additional damages might be payable to a property owner (Utah Code Annotated §27-12-96).

8.2.4 Hardship Acquisition

Property is acquired to alleviate a particular hardship to a property owner. The hardship must occur as a result of an inability to sell the property due to public awareness of the pending project. Applies only to limited parcel-by-parcel actions in extraordinary or emergency situations (Utah Code Annotated §27-12-96).

8.2.5 Purchase Options

A conditional contract or option is executed that gives the public agency the right but not the obligation to buy the property at a future date. The contract would specify the terms and conditions of the future purchase (Utah Code Annotated §27-12-96). A related concept involves the use of rights of first refusal under which the government entity obtains the first right to purchase the property when a landowner determines to sell its property.

8.2.6 Development Easements

The government agency purchases development rights or a development easement. The agreement would specify the uses that would be allowed on the land. The public agency would purchase the property owner's right to develop the land, leaving the owner with all other rights of ownership. Thus, intensification of and use or development would be precluded.

Existing Utah law provides for conservation easements to maintain land or water areas predominantly in a natural scenic, or open condition, or for recreational, agricultural, cultural, wildlife habitat or other use or condition consistent with the protection of open land. Such easements must be granted to a tax-exempt organization or government agency and cannot be obtained by eminent domain. The easement may be terminated pursuant to conditions set forth in the easement document (Utah Code Annotated §47-18-1).

8.2.7 Public Land Exchanges

Surplus government land is exchanged as compensation for private property needed for right-of-way.

8.2.8 Private Land Trusts

Private land trusts play an increasingly important role in land conservation where public objectives are aligned with private trust objectives. Where government budgets are insufficient to acquire critical tracts in a given time frame, private land trusts may acquire the tracts and hold them for future acquisition by the government.

8.2.9 Exercise of Police Powers

Regulatory controls under the police power can be used to control the development of private property in order to preserve the transportation corridor. These measures impose requirements with no compensation to the landowner. Land use and development controls are typically administered by local governments (36 A.L.R.3d 751).

8.2.10 Impact Fees and Exactions

This method involves a mandatory property or monetary contribution by a developer to the local jurisdiction as a condition of a land use approval or permit. These approvals or permits could be associated with a contract zoning, site plan approval, proposed subdivision, special use permit, or other development permission. In most cases, impact fees and exactions can be assessed only after a jurisdiction makes an individualized determination that the required dedication is "roughly proportional" in both nature and extent to the impact of the proposed development. Impact fees and exactions include the following variations (Utah Code Annotated §11-36-201).

In-kind contributions – Land owners and developers construct improvements or dedicate land for public facilities or right-of-way within or abutting the development site.

Monetary payments in lieu of contributions – Developers pay money in lieu of or in addition to in-kind contributions. This method may be used where the pooled contributions of numerous small developments is more effective than individual dedications of small parcels of land. The money is then used to acquire right-of way or make other improvements.

Impact fees – This method applies to a broader range of improvements whose need is generated by a new development. The effected jurisdiction charges developers for a pro rata share of capital funding for the improvements based on relative contributions to the impacts of the development by newly developed property and existing developments.

Constitutional standards of reasonableness govern the validity and amount of impact fees and exactions. To be constitutional, an impact fee or exaction must be a fair contribution in relation to contributions by others. Thus, an impact fee or exaction must not require newly developed properties to bear more than their equitable share of the capital costs in relation to the benefits conferred.

Seven factors must be considered in analyzing the fairness of an impact fee or exaction (Utah Code Annotated §11-36-201):

- The cost of existing facilities
- The manner of financing existing capital facilities (such as user charges, special assignments, bonded indebtedness, general taxes, or federal grants)
- The relative extent to which the newly developed properties and other properties in the jurisdiction have already contributed to the cost of existing capital facilities (by such means as user charges, special assignments, or payment from the proceeds of general taxes)

- The relative extent to which the newly developed properties in the jurisdiction will contribute to the cost of existing capital facilities in the future
- The extent to which the newly developed properties are entitled to a credit because the jurisdiction is requiring their developers or owners (by contractual arrangement or otherwise) to provide common facilities (inside or outside the proposed development) that have been provided by the jurisdiction and financed through general taxation or other means (apart from user fees) in other parts of the jurisdiction
- Extraordinary costs, if any, in servicing the newly developed properties
- The time-price differential inherent in fair comparisons of amounts paid at different times

In addition to constitutional limitations, in 1995 the Utah legislature in special session adopted stringent controls on the ability of local government to adopt impact fees to finance development growth. The new act requires that prior to the imposition of an impact fee, a government entity must do the following (Branberry Development Corporation v South Jordan City).

- Prepare a capital facilities plan that establishes that impact fees are necessary to achieve an equitable allocation to the costs borne in the past and to be borne in the future in comparison to the benefits already received and yet to be received
- Prepare a written analysis of the impact fee identifying the impact on the system caused by the development activity, demonstrate how those impacts are reasonably related to the development activity, estimate the proportionate share of the impact cost that are reasonably related to the new development activity, and identify how the impact fee was calculated
- Find that an impact fee is reasonably related to the new development based on analyses of specific factors
- Calculate the impact fee based on a list of defined criteria
- Hold public hearings on the adoption of the impact fee ordinance
- Establish a service area within which the jurisdiction calculates and imposes impact fees for various land use categories and either adopts a schedule of such fees by use category or establishes the formula for calculating such fees by use category

The new act contains other requirements relating to environmental mitigation fees, definitions of public facilities and in some cases detailed standards governing the adoption and administration of impact fees.

8.2.11 Setback Ordinances

A local ordinance establishes a certain distance from a curb, right-of-way, property line, or structure within which construction is prohibited. These requirements may be contained within subdivision ordinances, zoning ordinances or building codes.

Setback requirements do not constitute a compensable taking (Hargraves v Young). But if setbacks or minimum lot sizes have the effect of prohibiting all economic use of property for otherwise permitted uses, a taking may occur.

8.2.12 Official Maps or Maps of Reservation

Development is prohibited within proposed right-of-way in areas covered by an official master

street plan adopted by the jurisdiction. The official map may be used to plat future as well as existing streets. Generally, prohibition of development must not exceed a reasonable period after the implementing agency is advised of proposed development.

Prior to 1992, Utah law permitted the adoption of an official street map by municipalities and counties. Under prior law, the official street map had the legal effect of prohibiting development within the boundaries of the proposed street unless approved by the legislative body. Beginning in July of 1992, counties and municipalities were specifically prohibited from adopting an official map. Moreover, current law provides that an official map adopted under prior law does not require the municipality or county to acquire the property designated for eventual use as a public street. Utah law also expressly provides that an official map may not be used to unconstitutionally prohibit development of property (Utah Code Annotated §§17-27-7, 10-9-23).

Some courts have held that statutes permitting government to impose a development moratorium on property, located in a proposed transportation corridor during a period of reacquisition planning, unconstitutionally permits the taking of property without just compensation. Other courts have held that where the purpose of the government action is the prevention of development of land, that would increase the cost of planned future acquisition of such land by government, is unconstitutional. Some courts have found official maps unconstitutional if they also include compensation for the property owner for the period of temporary deprivation of the right to develop. Other statutory schemes have been validated when they allow development to proceed to avoid substantial damage to a property owner (Utah Code Annotated §§17-27-307, 10-9-306).

8.2.13 Adequate Public Facilities and Concurrency Requirements

Some communities address infrastructure needs by adopting ordinances that require a concurrency program intended to ensure that public facilities such as transportation systems are either in place, planned for, or provided as impacts occur from new development. Tools for implementation include carrying capacity limits, development caps, phasing systems, growth rate control, and other similar tools. This concept does not necessarily require developer's pay for improvement, but does require that such improvements be made when development occurs.

9 OTHER FUTURE ACTIONS

In addition to the long and short-term action items, the following actions should also be considered.

9.1 Interagency Agreement with UDOT

After adoption, it will be necessary to complete an agreement with UDOT regarding access to the state highways. This will help the County by providing a framework for future access permit applications related to private development. The County can grow around the main connections to the SR-120. It also helps UDOT by providing enough overall county information so that individual access points can be reviewed with an understanding of future adjacent needs.

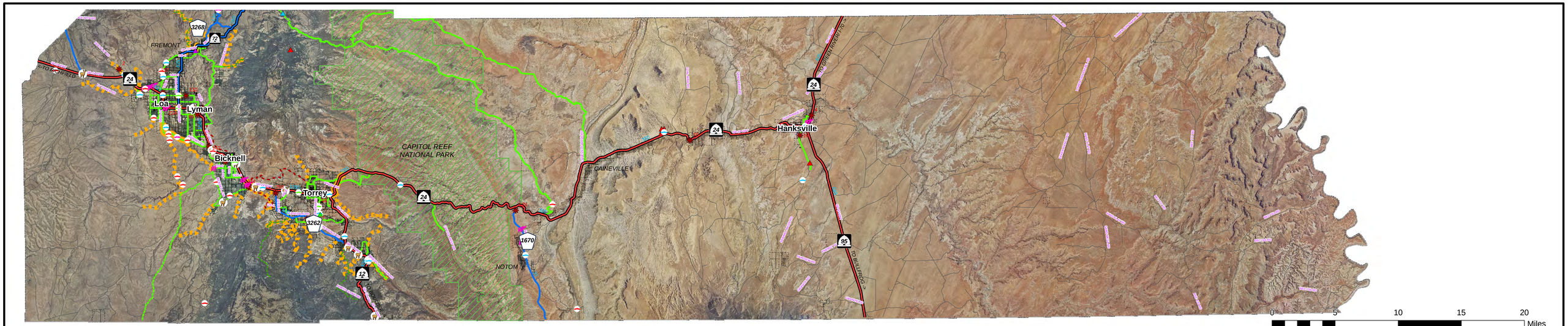
It is important that the County understand UDOT's requirements for traffic signals and the access points within the operational sphere of a signalized intersection. An understanding of UDOT's access permitting requirements is important also.

9.2 Land Use Planning Integration

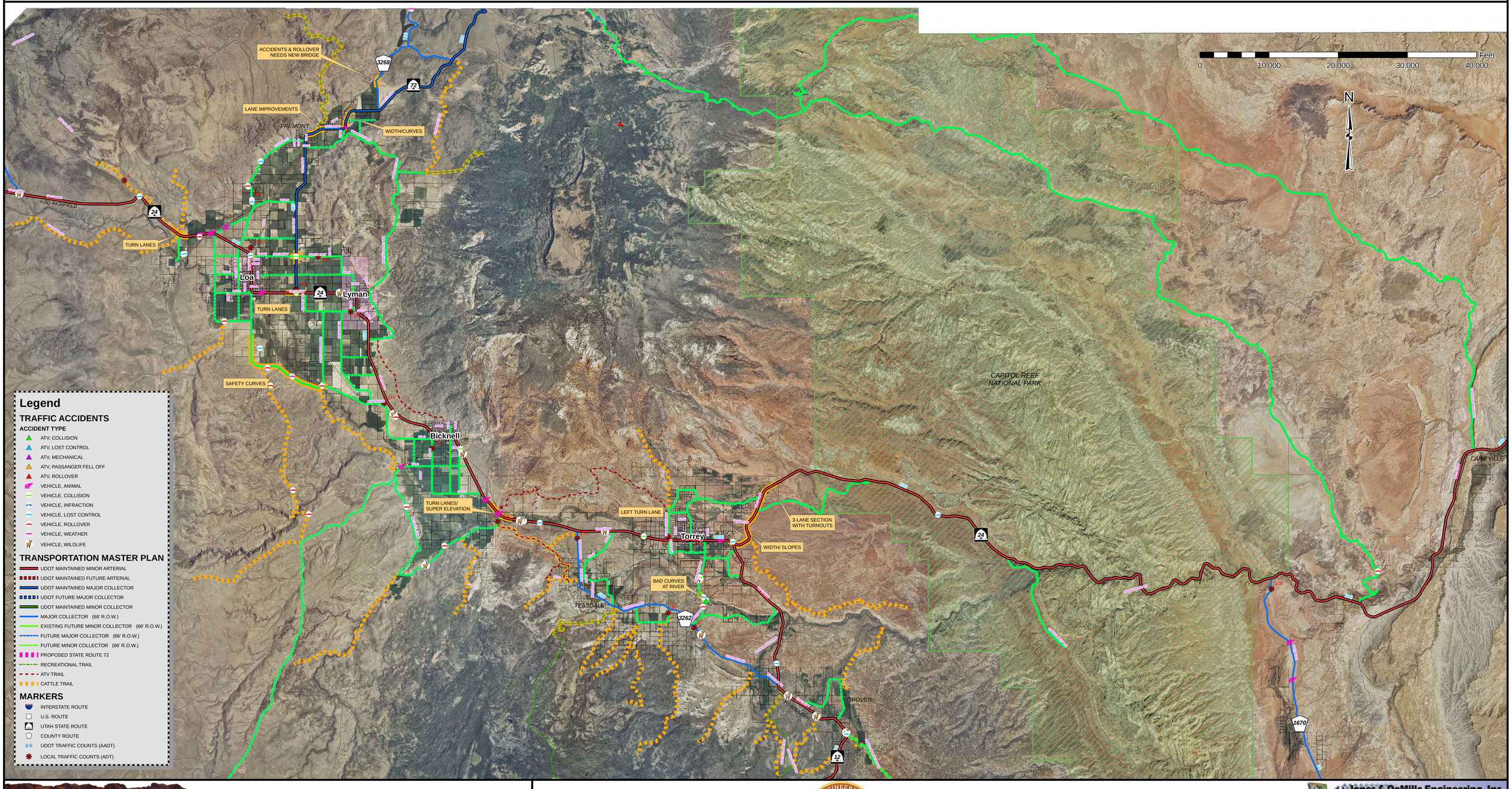
The County's current Zoning Plan calls for growth adjacent to existing corridors. This is similar to the development pattern in other rural communities, like the communities in Wayne County.

Traffic studies in such rural communities indicate that this centralized commercial development land use pattern has negative traffic impacts as the county grows. Residents from the outskirts of town must travel downtown or to the central corridor to go shopping, which creates a lot of traffic from the outlying areas into the CBD. These communities have considered placing small commercial clusters around the outside of town to create convenient locations for people to purchase goods and services, while minimizing travel distances. This could be accomplished in Wayne County with simple rezoning or through planned unit developments. It is recommended that the County consult with an urban planner to discuss this concept in more detail.

APPENDIX 1



OVERALL COUNTY MAP



WAYNE COUNTY

Map Name: Transportation 34x44.mxd	Drawn By: TRB
Date Created: 06/06/2007	Plotted Date: 01/19/2011

HOSKINS ENGINEERING DEVELOPMENT

WAYNE COUNTY TRANSPORTATION MASTERPLAN

GIS

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ACCIDENTS & ROLLOVER NEEDS NEW BRIDGE

3268

72

FREMONT

<TO RICHFIELD

24

TURN LANES

Loa

Lyman

TURN LANES

SAFETY CURVES

Bicknell

TURN LANES/ SUPER ELEVATION

TURN LANES

TURN LANES

Torrey

3-LANE SECTION WITH TURNOUTS

WIDTH/ SLOPES

BAD CURVES AT RIVER

TEASDALE

3262

CAPITOL REEF NATIONAL PARK

GROVER

TO BOULDER

12

N

Feet

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Legend

TRAFFIC ACCIDENTS

ACCIDENT TYPE

- ATV, COLLISION
- ATV, LOST CONTROL
- ATV, MECHANICAL
- ATV, PASSANGER FELL OFF
- ATV, ROLLOVER
- VEHICLE, ANIMAL
- VEHICLE, COLLISION
- VEHICLE, INFRACTION
- VEHICLE, LOST CONTROL
- VEHICLE, ROLLOVER
- VEHICLE, WEATHER
- VEHICLE, WILDLIFE

TRANSPORTATION MASTER PLAN

- UDOT MAINTAINED MINOR ARTERIAL
- UDOT MAINTAINED FUTURE ARTERIAL
- UDOT MAINTAINED MAJOR COLLECTOR
- UDOT FUTURE MAJOR COLLECTOR
- UDOT MAINTAINED MINOR COLLECTOR
- MAJOR COLLECTOR (66' R.O.W.)
- MINOR COLLECTOR (66' R.O.W.)
- FUTURE MAJOR COLLECTOR (66' R.O.W.)
- FUTURE MINOR COLLECTOR (66' R.O.W.)
- PROPOSED STATE ROUTE 72
- RECREATIONAL TRAIL
- ATV TRAIL
- CATTLE TRAIL

MARKERS

- INTERSTATE ROUTE
- U.S. ROUTE
- UTAH STATE ROUTE
- COUNTY ROUTE
- ## UDOT TRAFFIC COUNTS (AADT)
- LOCAL TRAFFIC COUNTS (ADT)

WAYNE COUNTY

Map Name: WEST TRANS 34x44.mxd	Drawn By: TRB
Date Created: 07/22/2009	Plotted Date: 01/19/2011

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WAYNE COUNTY - TRANSPORTATION MASTERPLAN
WEST END

GIS

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FREMONT

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TURN LANES

TURN LANES

Legend

TRAFFIC ACCIDENTS

ACCIDENT TYPE

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- ATV, PASSANGER FELL OFF
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- VEHICLE, ROLLOVER
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- VEHICLE, WILDLIFE

TRANSPORTATION MASTER PLAN

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- COUNTY ROUTE
- ## UDOT TRAFFIC COUNTS (AADT)
- LOCAL TRAFFIC COUNTS (ADT)

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WAYNE COUNTY

Map Name: loa_lyman_fremont 34x44.mxd	Drawn By: TRB
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WAYNE COUNTY - TRANSPORTATION MASTERPLAN
LOA, LYMAN & FREMONT AREAS

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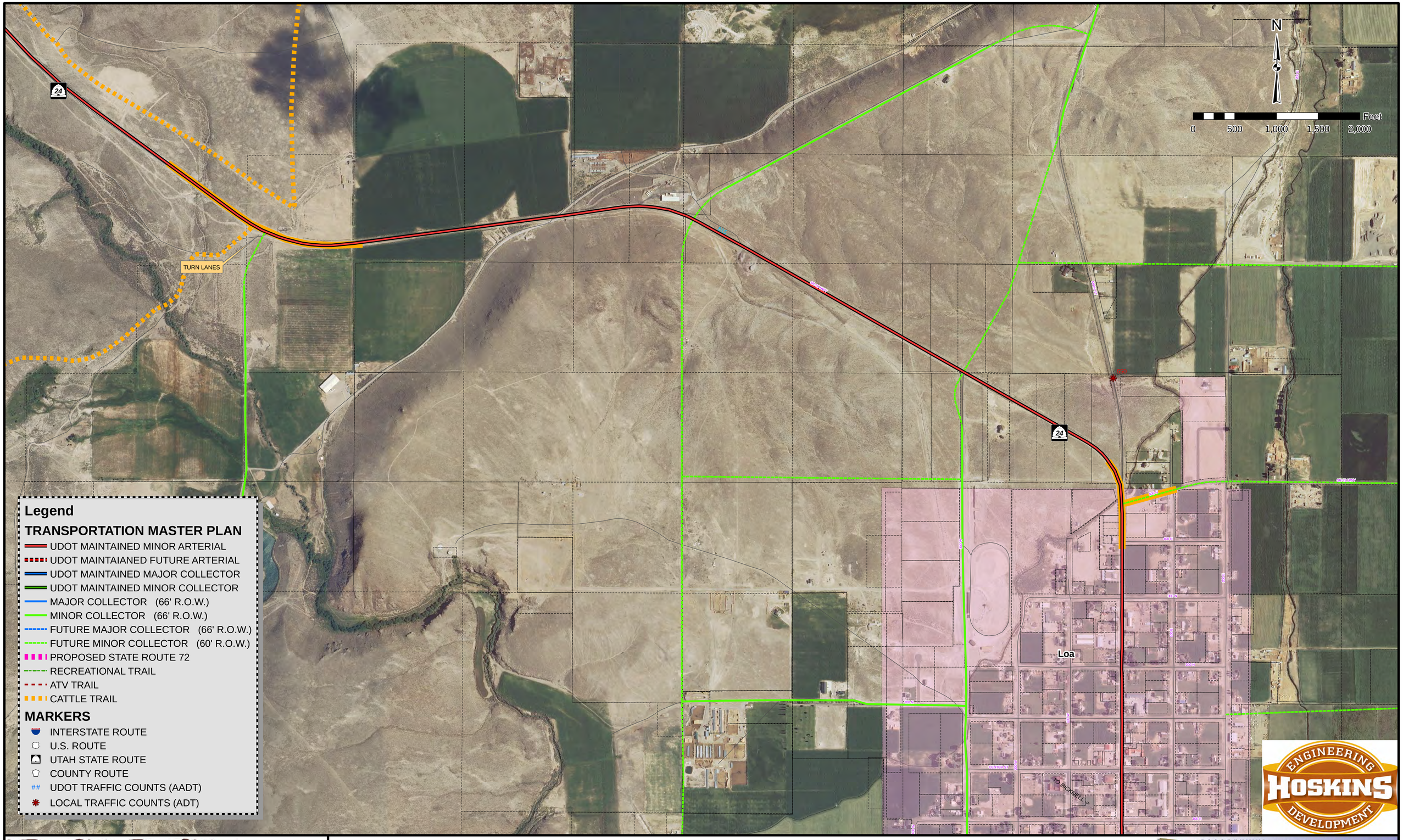

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TRANSPORTATION MASTER PLAN

- UDOT MAINTAINED MINOR ARTERIAL
- UDOT MAINTAIANED FUTURE ARTERIAL
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- UDOT MAINTAINED MINOR COLLECTOR
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- UTAH STATE ROUTE
- COUNTY ROUTE
- ## UDOT TRAFFIC COUNTS (AADT)
- LOCAL TRAFFIC COUNTS (ADT)

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WAYNE COUNTY

Map Name: LOA 22x34.mxd	Drawn By: TRB
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WAYNE COUNTY - TRANSPORTATION MASTERPLAN
LOA AREA

GIS

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Loa

Lyman

TURN LANES

SAFETY CURVES

TO BICKNELL

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0 1,000 2,000 3,000 4,000 Feet

Legend

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- U.S. ROUTE
- UTAH STATE ROUTE
- COUNTY ROUTE
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- LOCAL TRAFFIC COUNTS (ADT)

WAYNE COUNTY

Map Name: LYMAN 22x34.mxd	Drawn By: TRB
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WAYNE COUNTY - TRANSPORTATION MASTERPLAN
LYMAN AREA

GIS

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WAYNE COUNTY

Map Name: FREMONT 22x34.mxd	Drawn By: TRB
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WAYNE COUNTY - TRANSPORTATION MASTERPLAN
FREMONT AREA

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3-LANE SECTION WITH TURNOUTS

WIDTH/ SLOPES

BAD CURVES AT RIVER

TO BOULDER ->

Torrey

GROVER

CAPITOL REEF NATIONAL PARK

24

12

3262

1670

128

Legend

TRANSPORTATION MASTER PLAN

- UDOT MAINTAINED MINOR ARTERIAL
- UDOT MAINTAIANED FUTURE ARTERIAL
- UDOT MAINTAINED MAJOR COLLECTOR
- UDOT MAINTAINED MINOR COLLECTOR
- MAJOR COLLECTOR (66' R.O.W.)
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- LOCAL TRAFFIC COUNTS (ADT)

WAYNE COUNTY

Map Name: Capitol Reef 22X34.mxd	Drawn By: TRB
Date Created: 10/30/2008	Plotted Date: 01/19/2011

WAYNE COUNTY - TRANSPORTATION MASTERPLAN
CAPITOL REEF AREA

ENGINEERING HOSKINS DEVELOPMENT

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APPENDIX 2

Wayne County Transportation Master Plan

Wayne County

Capitol Reef Meeting

Monday, January 12, 2009

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Brandon Jensen	Wayne Co GIS	435-836-1323	brandon@wco.state.ut.us
Ted R. Taylor	Wayne Co.	435 836-2682	Ted@wco.state.ut.us
Anne Ogden	UDOT-Region 4	435-893-4715	anneogden@utah.gov
Marsha Chesley	UDOT- Region 4 Permits	435-201-2571	marsha@utah.gov
Bret Sorenson	UDOT R4 Richfield District	435-896-1301	bsorenson@utah.gov
Don Corbeil	NPS	435 425 3791 x146	don_corbeil@nps.gov
LaMont Chappell	NPS	435-425-3791-x137	Lamont_Chappell@nps.gov
LINDA RICHARDS	NPS	435-425-3791 x135	Linda_Richards@nps.gov
Scott BROWN	NPS	435-425-3791 x130	Scott-brown@nps.gov
Al Hendricks	NPS	435-425-3791 x100	al_hendricks@nps.gov
Steve Kunzler	UDOT	435-896-1304	SKunzler@utah.gov
Tyler Hoskins	Hoskins Engineering	435-668-9882	tyler@hoskinsengineering.com
DAVE WORTHINGTON	NPS	435-425-3791 X145	DAVE_WORTHINGTON@NPS.GOV

Wayne County Transportation Master Plan

Wayne County

Public Open House

Thursday, March 12, 2009

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Thomas A Jeffery	Wayne Co. Comm.	435 836 2713	Jeffery@waynecountyutah.org
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Stanley Wood	Commission	435-836-2777	
Robert Fillmore		435-836-2888	RFillmore@scinternet.net
DeRae Fillmore	Wayne Co Commission	435 836 2888	Fillmore@waynecountyutah.org
Ellis Brown	Vistor	435-836-2420	
Ray Hickman		425 3006	Torrey Utah

Wayne County Transportation Master Plan

Wayne County

Technical Review Committee Meeting

Wednesday, February 11, 2009

Name	Company / Agency	Phone	E-mail
Michael Hawley	Jones and DeMille	896-8266	michael@jonesanddemille.com
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Anne Ogden	UDOT	893-4715	anneogden@utah.gov
Dexter Fillmore	WAYNE CO COMM	435 836-2888	Fillmore@WAYNECOUNTYUTAH.org
Brandon Jensen	Wayne Co. GIS	435-836-1323	brandon@wco.state.ut.us
Ted R. Taylor	Wayne Co. Roads	435 836-2682	Ted@wco.state.ut.us
Jeff Olsen	UDOT	435 836-2631	JMOLSEN@utah.gov

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Location:	Courthouse	Date:	7/22/09
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Client:		Checked:	

- P&Z -

July 22nd Public Meeting Sign-In Sheet

Dudley & Beverly Brians 836 2775
Bonnie Mangold (Teasdale) 435-425-3585 bonscello@aol.com
Dottie Weaver Torrey 425-3381 ssw@color country.net
Ed + Joan White Teasdale 425-3077 teasdalewhites@scinternet.net
James Peterson Loa 836-2702
Russell Peterson Loa 836-2707
Tom Taffeny Fremont 836-2713
Stephe Elliott Richfield 4356915319 Maria@scinternet.net
ERIC TORGERSON LOA 435-979-1279 ERIC.TORGERSON@WAYNE.K12.UT

Anne Macey Teasdale 801-580-6520 none
Marion Schlauch Teasdale (435)766-7454 mspotter45@gmail.com

SHERRILL TORGERSON LYMAN 435-836-2825

BRIAN SWANSON TEAS 4359798786
Kelley Kaelon Fremont 836-2817 oldgilestown@gmail.com
Doug & Marilyn Oyler Loa 836-2639 doyler@cfu.net
Phillip & Marcy Winters 836-2373 phillipwin@scinternet.net
Boyd Taylor Loa 836-2375
Helen Jones Loa 836-2767
Gaylene Peterson Loa 836-2895
Kay Peterson - Loa 836-2895
Wanda Oyler - Loa 691-0896
Heather TORgerson - Loa 836-2076 HTorgerson@scinternet.net
Kyle Torgerson - Loa 836-2076
Michael Bowen Loa 836 2324

JLY 22ND PUBLIC MTG SIGN IN

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Project:	Page
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NAME	PHONE	EMAIL
Paul Jacobs	425-3133	
Kerry Johnson	836 2620	
Albert R. Potter	836-2847	
Virginia Potter	"	potterv@gmail.com
Steve Beran	836-2884	harjbrid@yahoo.com

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Client:	Checked:

Wayne Co. Transportation Master Plan Meeting 11/10/08

Name	Company	Contact
Michael Hawtery	Jones and DeMille	michael@jonesanddemille.com 435-896-8266
DeRae Fillmore	Wayne Co.	
Ted R. Taylor	Wayne Co Road	Ted@wco.Stat.ut.us
DAVE WORTHINGTON	CAPITOL REEF NP.	425-3791 x145 DAVE_WORTHINGTON@NPS.GOV
Scott BROWN	CAPITOL REEF NP	425-3791 x130 Scott_brown@nps.gov

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Wayne County TMP Committee Review Meeting

Name	Representing	Email
Brian Barton	J&D Engineering	brian@jonesanddemille.com 435-979-7652
DAVE WORTHINGTON	CAPITOL REEF NP	435-425-3791 x145 DAVE_WORTHINGTON@NPS.GOV
Scott BROWN	CAPITOL REEF NP	Scott_brown@nps.gov
Gary L. Hall	BLM	Gary_L_Hall@blm.gov
BRANDON JENSEN	WAYNE CO. GIS DEPT	Brandon@wco.state.ut.us
Ted R. Taylor	Wayne County	Ted@wco.state.ut.us
DeRae Fillmore	Wayne Co	

Wayne
M.P.
2nd.

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Wayne County Technical Review Comm. — Discussion with Ted Taylor.

+ Call each Town for Roads council persons & mayors

- Loa - Kelly Harward
- Use mayors to make decision on representative.
- Lyman, Bicknell, Torrey, Hanksville.

+ Daren Nielson - Fremont.

+ Dick Pace - Teasdale.

+ Dudley Elliot — Grover / Teasdale

+ Sheriff.

+ Paul Hinrich - Bldg.

+ Mike - Piz.

+ Kathy Woolsey - School District.

+ BLM

+ Forest.

+ Capitol Reef.

+ UDOT - Steve, Robert

Wayne Co. Planning 2nd.

- Maps / week prior -
- Tyler Hosking.
- Community Center.
- 1pm - May 30.

Comment Summary

Wayne County TMP

Date Submitted	Name	Comment Summary	Resolution / Outcome
3/12/2009	Brian Swanson	The roads should not be planned for residential area.Bicycle and Ped routes need to be on this plan. Donkey Flat Road is adequate for this area.	The Donkey Flat Road mentioned in this comment was removed from the plan.
3/12/2009	Brian Swanson	Not large enough maps. Delete two roads south of the Teasedale Road. Residents of Donkey Flats are happy with it now. Two roads will promote more unwanted traffic in this residential neighborhood. River View road should be paved. Questions regarding two new proposed road.1)why were they proposed? 2)how would county gain title if on private property? 3)how would county pay for them? 4)how would county pay for litigation? 5)why weren't existing roads addressed? 6)how has traffic been assessed?	Comments were taken into consideration
3/12/2009	Colleen Jeffery	I do not like the realignment of Hwy 72. There are other places more suitable for it. It does not take care of the turns and problems and uses too much private land. I support Hwy 24 but not 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
3/12/2009	Thomas A. Jeffery	I do not like the realignment of Hwy 72. There are other places more suitable for it. It does not take care of the turns and problems and uses too much private land. I support Hwy 24 but not 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
3/12/2009	Teri Leavitt	I do not like the realignment of Hwy 72. There are other places more suitable for it. It does not take care of the turns and problems and uses too much private land. I support Hwy 24 but not 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
3/12/2009	Evan Leavitt	I do not like the realignment of Hwy 72. There are other places more suitable for it. It does not take care of the turns and problems and it shouldn't cut through the fields. I support Hwy 24 but not 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
3/12/2009	Micheal Jeffery	The realignment of Hwy 72 needs to be reviewed. It is not in the right place and wont rid the problems. I support Hwy 24 but not 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
3/12/2009	Virginia Jeffery	I do not like the realignment of Hwy 72. The plan is fine but not the realignment. It does not take care of the turns and problems and uses too much private land. I support Hwy 24 but not 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
3/12/2009	Weslie Jeffery	I do not like the realignment of Hwy 72. It does not take care of the turns and problems and uses too much private land. I support Hwy 24 but not 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
3/12/2009	Dana Landale	We are strongly opposed to any plans in the Donkey Flat Area. The existing road can handle traffic demands. Funds should be applied to projects that include improvements to existing roads, not to unnecessary roads that are NOT WANTED!	The Donkey Flat Road mentioned in this comment was removed from the plan.
3/12/2009	Ralph & Jean Nuismer	suggestions: 1) eliminate proposed East-West road-serves no purpose. 2)keep extension of existing River View Road, but eliminate the donkey flats road 3)use the money saved to improve the existing roads that need to be improved.	The East-West/Donkey Flat Road mentioned in this comment was removed from the plan.
3/17/2009	Lynne Nolte	We oppose any changes to roads south of Teasdale Road. We do not support a new disignation for what is now a private lane.	The Donkey Flat Road mentioned in this comment was removed from the plan.

Date Submitted	Name	Comment Summary	Resolution / Outcome
3/17/2009	Kathryn Kilgore & Larry Estridge	Objections: New roads will ruin landscape, property values, rural character and attract nuisance traffic. Who came up with the new roads idea? Impetus for unwarranted development? Object to extremely short comment period.	The Donkey Flat Road mentioned in this comment was removed from the plan.
3/18/2009	Lucy Osborn	No objection to improvements on roads but object to new roads that are not necessary. Concerned about money and taxpayer dollars. Roads that need improvement instead are Rover Drove amd Grpver Road-they are dangerous and need improvement.	The Donkey Flat Road mentioned in this comment was removed from the plan.
3/22/2009	Nancy Brown	Several points for record regarding first Proposed plan: 1)road going thru private property 2)the existing county road can handle traffic in this area 3)existing pipeline on my property providing fields below-could be damaged. Comments on latest proposal: 1) I own property on both sides of the line, would create a short cut and not for local use. 2)increase traffic-dust, mud etc. for families in this area	The Donkey Flat Road mentioned in this comment was removed from the plan.
3/23/2009	Kelly Marinan	Disagree with modifications for Donkey Flat area, south of Teasdale Road, should be left how it is. Residents warrants the cost and maintenance for road modifications. Traffic is low. Sight-lines are fine. Widening road might increase traffic speed, add noise and pollution, and increase accidents. Stongly prefer area preserved the way it is.	The Donkey Flat Road mentioned in this comment was removed from the plan.
3/24/2009	Eric M. Kankainen, PE, SE	555 South Riverview Drive, Teasedale-We are adjacent to bad curves at the river which is the site of numerous accidents (they should be eliminated). The road between SR-12 and Reiverview Drive serves no purpose, it will divide my property and pastures, it is going to do irreparable damage to the environment and habitat, and the river also has many signs of archeological sites which will be exposed to vandalism and damage from construction. Please eliminate this road from Master Plan.	Road alignment has been relocated along an existing dirt road.
3/26/2009	Wendy Ling & Larry Cole	The road seems to be adequate for the low density growth occurring here. The road cutting through property is not necessary. We strongly object to this. The proposed road may provide access to some larger open spaces in our area but at some distant future date, development might occur in some of these areas. If that the case, the road makes sense. We object to the original plan, as it encourages future development to the detriment of property owners and would not benefit them. we support the revised plan so far as it includes roads on property that may be developed.	The Donkey Flat Road mentioned in this comment was removed from the plan.
5/27/2009	Albert & Vivian Potter	No realignment of 72-it directly affects homes and population. Please make noted changes.	Hwy 72 realignment through BLM ground was removed. Also, realignment of 72 where it connects to 24 will be mentioned as a long term possiblility but will be removed from the map.
5/27/2009	Julia Sorenson	Hwy 72 will take business away from county. Farmers will be on the road using their farm equipment. The intersection into Loa has never had an accident. Hwy 24 needs adjustments on the twisting and winding turns.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
5/27/2009	Emily Brian Lee	Map was not easy to understand. Do not support street classifications. I have plans for ten areas which do not support your classifications. I do not want to give more than a 120 ft. easement on both sides of the road. See my numbers on maps.	No new alignments affect her property
5/27/2009	Sherrill & Sheila Torgerson	See map-road should be eliminated. No purpose for it. The road would greatly impact agriculture. Another public hearing should be held. Changing the roads would have a negative impact on the businesses in Loa. USE EXISTING ROADS.	Road alignments have been changed to go around the property in question. SR-24 will remain through Lyman and Loa.
5/27/2009	Kyle & Heather Torgerson	No need for Road #1. No traffic on Road #2, why make it bigger? #3 runs through our farm ground and is no necessary. All additional roads are unnecessary-this is a farming community and additional traffic will not benefit anyone. We circled areas we own.	Road alignments have been changed to go around the property in question. SR-24 will remain through Lyman and Loa.

Date Submitted	Name	Comment Summary	Resolution / Outcome
5/27/2009	Russell & Pam Peterson	map was not easy to understand. No I do not agree-it is private property. Any development would have to be done by land owners.	Some minor collectors were removed from the map. Collector alignments were positioned to follow property lines where ever possible.
5/27/2009	Dale & Michele Coats	Do not change location of hwy 24 & 72. We support as long as you stay on property line and do not diagonal across private property. We feel the existing roads are in a good location for hwy 24 & 72.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
5/27/2009	Mack C Morrell	Suggests no changes be made, the roads should be left as is. No road should be built above hwy 24	No roads will be built until development occurs. Hwy 24 was left in existing alignment.
05/27/2009	Aaron Jacobs	Does not want good farmland to be broken up to make new roads. Improve and fix current roads	No roads will be built until development occurs. Hwy 24 was left in existing alignment.
6/25/2009	Troy Brian	Doesn't like the proposed new Highway location. Why not widen the road a bit and fix intersection at the north end of Loa. Why move it to not go through the town of Fremont for economical reasons. Better and more ways to spend money for highway 72. Doesn't like the highway route 24 going around outskirts of the valley and passing Lyman. Money can be better spent for economic growth in Lyman. the turn on the south end of Loa on Hwy 24 could be changed to resemble hwy 89 in Panguitch. No reason to have a county road above Lyman thru Privage property going essentially same place as hwy 24. we need to adapt and change and plan for growth.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
6/30/2009	Don Peay	Nearby Members of Fish and Wildlife asked for the comment periods for the proposed highway re-alignments. Major concern-if roads are moved to benches of foothills, it will increase highway mortalities of wildlife and maybe injur humans if there are NOT proper mitigation efforts. Let us know when comment periods are due and of opportunities to discuss details and plans.	Major collectors such as 72 and 24 were left along exising alignments.
7/8/2009	Kathleen Knight	Supports 1) Pdestrian & Bicycle Paths 2) Addittional traffic control @ intersection of 12 and 24 3) Development of a coordinated working relationship between the county, the towns, the state, and the parks. The realigments of 24 and 72 aren't warented, and the left turn lanes to Teasdale aren't needed either.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
7/13/2009	Karl Albrecht	Hwy 72 will run right through my property. Takes away farmland right of way. It would increase collisions with wildlife. 72 could use more shoulder room where it passes the old River Inn on Fremont bench. A turning lane could be added to hwy 24 in "Lyman Lane". Existing turns on hwy 72 from Loa could be improved with widening and banking.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
7/20/2009	Justin Peterson	Questions of why proposing this plan. Private land owner rights should be at highest consideration.	Comments were taken into consideration
7/21/2009	Jerome West	Questions on parts of the Long Range Transportation Plan.	Comments were taken into consideration
7/22/2009	Ronnie Mangold	Greater focus on short term and maintenance issues.Less engineering standards. Still unnecessary roads being proposed (see sheet). Torrey does not need sidewalks, gutters and streetlights. Bike path would be beneficial for residents and tourists. Improvements to Hwy 24 east of Torrey through CRNP seem appropriate also. Safety issues at intersection of 24 and 72 could be solved easier and at a lower cost-possibly by making extension of Main Street one-way north for a block or so, rerouting southbound traffic on that block to 72. Speed limits need to be kept as they are because of the wildlife safety and hazards.	SR-24 and 72 intersection has been relocated since comment. Other comments were taken into consideration
7/22/2009	Elvon Jacobs	Does not suport roadway alignments. Improve existing roads, do not make more. Identify dangerous ares on existing roads and fix them. SEE THE ATTAHCED SHEET FOR FURTHER COMMENTS.	These comments were taken into consideration and changes were made to the plan. However, due to operational saftey concerns it is not advisable to create mulitlple intersections along SR-24 between Loa and Lyman. Existing roads may not be able to handle future traffic demands.
7/22/2009	Stephen Ellett	use existing roads. Do not divide property. See notes and drawing on back.	Existing Roads may not be able to handle future traffic demands.
7/22/2009	Anne Macey	wrong concepts on minor collectors. Bike paths-widening is good so travelers are safe.	Existing Roads may not be able to handle future traffic demands. Comments were taken into consideration.

Date Submitted	Name	Comment Summary	Resolution / Outcome
7/22/2009	Kelly Taylor	I prefer to just FIX the jct. with u-24 and the four way interchange 1 mile east.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
7/22/2009	Ed & Joan White	The current plans are much better than the previous version for us personally.	Comments were taken into consideration
7/22/2009	Vivian Potter	Questions of proposed road location.	SR-72 & 24 intersection will be relocated down between Lyman and Loa. Fremont road will be realigned to intersect SR-24 at 300 West in Loa. The new alignment will follow property lines where ever possible.
7/22/2009	Russell Peterson	Instead of a four way stop on the east side of 24 tak off the side of the road to view is unrestricted, also make turning lanes	SR-72 & 24 intersection will be relocated down between Lyman and Loa.
7/22/2009	Marion Schlauch	supports the turn lane proposals, but the town doesn't need to make new roads . Would like to see bike paths added, especially form Torrey to Loa	Comments were taken into consideration
7/22/2009	Paul Jacobs	Excessive growth is not really a problem in the upper valley of wayne county, any improvement efforts should be in lower valley where there is more tourism traffic. We don't need roads to break up farmland	Comments were taken into consideration
7/22/2009	Dorothy C. Weaver	There should be walking and bike paths on SR 24. The changes do not seem to accomplish that much	A bike path was addressed in the Plan as a recommendation.
7/27/2009		Local businesses want a bike path to be included in the Transportation Master Plan.	A bike path was addressed in the Plan as a recommendation.
7/22/2009	C. Kay Peterson	1) do not make the new highway from 72 to 24. No need for a highway parallel to an existing highway. 2) Square up Johansen intersection, maybe add a four way stop or flashing light to prevent accidents. 3) hatchery to hwy 24 intersectioncould be changed and the end of highway 72 widened and straightened. see attached maps	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
9/30/2009	No Name Box 245-Loa	Big Rocks Road: 1) Cattle and sheep crossing. Locals drive cattle along road and also haul hay; 2) Wildlife and colony of prairie dogs impacted by new road. Hunters, photographers, tourists impacted by new road; 3) More traffic a safety issue; 4) Decreasing viable acreage; 5) No need for new road due to no population growth or lack of jobs; 6) Road are sufficient; 7) Road north of Bicknell, where is it going? 8) Do not change Big Rocks Road or HW 24.	Highway 24 realignment along Big Rocks Road was removed from the map.
9/30/2009	Randy Blackburn	Map is hard to read. Create a map that one can pull up and see what the plan is. I support some roads, but don't agree with others. Some too costly and would would better serve the plan in different places.	Comments were taken into consideration
9/30/2009	Vikki Finnegan	Map too unclear to understand; unable to comment. Am interested in plan and would like more definitive picture.	Comments were taken into consideration
9/30/2009	Jason Jones	Map not really easy, but I got it. Very few items could be considered. Why spend money we don't have.	Comments were taken into consideration. Development of new roads is contingent upon growth and economic development.
9/30/2009	George Britton	No changes, please. Like as is. Use funds for maintenance and repairs only. Do not support alignments.	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
9/30/2009	LaDawn Zabriskie	Some of us are not on internet.	Comments were taken into consideration
9/30/2009	Gary R. Brian	Do not agree w/realignments. To bypass town is not in best interests of county. HW 24 is scenic hwy and not a speed course. SR24 should not bypass Lyman. Turn on HW72 east of Loa can be fixed--worse places than this one. What about SR24 and SR12 junction? What about road from CRNP to Hanksville--worse in county?	Highway 24 realignment was removed from the map. Hwy 72 realignment through BLM ground was removed. The junction between SR-72 and SR-24 has been relocated since the comment.
9/30/2009	Clotilde Barrett	Cannot find info on bicycles and peds. What about green studies? Walk from junction HW12 and 24 in Torrey to post office-dangerous highway.	Comments were taken into consideration
9/30/2009	Richard W. Teasdale	Some difficulty reviewing plan; plan would be valuable if used for stated purpose on plan. Doubts that the plan will do little more than take up space in filing cabinet. Form: Map too technical; Supports street class and alignments	Comments were taken into consideration
9/30/2009	Carl Albrecht	Information easy to understand.	Comments were taken into consideration

APPENDIX 3

Wayne County Transportation Growth Rate

Traffic On Utah Highways

SR-24 Mile Post	**2006**	**2005**	**2004**	Average Growth 2004 to 2006
51.58 to 52.46	1,425	1,315	1,270	
	8.4%	3.5%		6.0%
53.02 to 59.90	1,715	1,580	1,535	
	8.5%	2.9%		5.7%
60.55 to 60.85	1,800	1,660	1,605	
	8.4%	3.4%		5.9%
68.02 to 69.14	1,335	1,230	1,190	
	8.5%	3.4%		5.9%
SR-12				
116.77 to 118.18	320	315	310	
	1.6%	1.6%		1.6%
SR-72				
0.00 to 1.19	655	605	585	
	8.3%	3.4%		5.8%
SR-95				
16.12 to 26.08	695	680	675	
	2.2%	0.7%		1.5%
				Average of all Average Growth Rates
				4.6%

Growth Rate used for TMP Study - 5.0%

APPENDIX 4

Wayne County VMT and Level of Service (LOS)

ROADWAY	LENGTH	Miles	VMT	VMT ratio	2007 Volumes	2012 Volumes	2017 Volumes	2027 Volumes	2007 V/C ratio *	2012 V/C ratio *	2017 V/C ratio *	2027 V/C ratio *	2007 LOS+	2012 LOS+	2017 LOS+	2027 LOS+	Study Recommended Classification
NOTOM ROAD	51861.66933	9.822286	1257.3	1.212	128	164	211	348	0.0171	0.0219	0.0281	0.0464	A	A	A	A	**Major Collector**
LANDFILL-CEMETERY ROAD	266.6022732	0.050493	0.2	0.000	4	5	7	11	0.0005	0.0007	0.0009	0.0015	A	A	A	A	**Minor Collector**
GILES ROAD	439.5479968	0.083248	1.3	0.001	16	21	26	43	0.0021	0.0028	0.0035	0.0057	A	A	A	A	**Minor Collector**
DONKEY FLAT ROAD	662.7911932	0.125529	3.1	0.003	25	32	41	68	0.0033	0.0043	0.0055	0.0091	A	A	A	A	**Minor Collector**
TEASDALE ROAD S	16576.59155	3.139506	304.5	0.294	97	125	160	264	0.0129	0.0167	0.0213	0.0352	A	A	A	A	**Major Collector**
LONESOME BEAVER ROAD	14967.32304	2.83472	82.2	0.079	29	37	48	79	0.0039	0.0049	0.0064	0.0105	A	A	A	A	**Minor Collector**
RIVER VIEW ROAD	12453.37328	2.358593	136.8	0.132	58	74	96	158	0.0077	0.0099	0.0128	0.0211	A	A	A	A	**Minor Collector**
CENTER STREET TORREY	4157.674178	0.787438	219.7	0.212	279	358	460	758	0.0372	0.0477	0.0613	0.1011	A	A	A	A	**Major Collector**
SAND CREEK ROAD	19510.12101	3.695099	376.9	0.363	102	131	168	277	0.0136	0.0175	0.0224	0.0369	A	A	A	A	**Minor Collector**
BIG ROCK ROAD	4173.785122	0.79049	116.2	0.112	147	189	242	400	0.0196	0.0252	0.0323	0.0533	A	A	A	A	**Minor Collector**
HORSE VALLEY ROAD	35599.74825	6.742377	370.8	0.358	55	71	91	150	0.0073	0.0095	0.0121	0.0200	A	A	A	A	**Minor Collector**
MOUNTAIN VIEW ROAD	13621.28633	2.579789	340.5	0.328	132	169	218	359	0.0176	0.0225	0.0291	0.0479	A	A	A	A	**Minor Collector**
400 SOUTH LYMAN	8983.264136	1.701376	137.8	0.133	81	104	134	220	0.0108	0.0139	0.0179	0.0293	A	A	A	A	**Minor Collector**
1100 EAST LOA	5289.357148	1.001772	214.4	0.207	214	275	353	582	0.0285	0.0367	0.0471	0.0776	A	A	A	A	**Minor Collector**
TEASDALE ROAD N	26612.88356	5.040319	1507.1	1.453	299	384	493	813	0.0399	0.0512	0.0657	0.1084	A	A	A	A	**Major Collector**
FISHLAKE CUT OFF ROAD	22190.76433	4.202796	159.7	0.154	38	49	63	103	0.0051	0.0065	0.0084	0.0137	A	A	A	A	**Minor Collector**
HATCHERY ROAD	35422.48783	6.708805	764.8	0.737	114	146	188	310	0.0152	0.0195	0.0251	0.0413	A	A	A	A	**Minor Collector**
400 WEST BICKNELL	10986.61739	2.080799	228.9	0.221	110	141	181	299	0.0147	0.0188	0.0241	0.0399	A	A	A	A	**Minor Collector**
FREMONT ROAD	14982.00393	2.837501	672.5	0.648	237	304	391	644	0.0316	0.0405	0.0521	0.0859	A	A	A	A	**Minor Collector**
NORTH LOA MAIN	7655.737399	1.44995	297.2	0.287	205	263	338	557	0.0273	0.0351	0.0451	0.0743	A	A	A	A	**Minor Collector**
SR-24					**UDOT 2006 AADT**												
Milepost 40.82 to mp 51.58		10.76	9092.2	8.767	845	1141	1465	2415	0.0704	0.0951	0.1221	0.2013	A	A	A	A	**Arterial**
Milepost 51.58 to mp 52.46		0.88	1254.0	1.209	1425	1924	2470	4072	0.1188	0.1603	0.2058	0.3393	A	A	A	A	**Arterial**
Milepost 52.46 to mp 53.02		0.56	1246.0	1.201	2225	3003	3856	6358	0.1854	0.2503	0.3213	0.5298	A	A	A	A	**Arterial**
Milepost 53.02 to mp 59.90		6.88	11813.0	11.390	1717	2318	2976	4907	0.1431	0.1932	0.2480	0.4089	A	A	A	A	**Arterial**
Milepost 59.90 to mp 60.55		0.65	1043.3	1.006	1605	2167	2782	4587	0.1338	0.1806	0.2318	0.3823	A	A	A	A	**Arterial**
Milepost 60.55 to mp 60.85		0.3	540.0	0.521	1800	2430	3120	5144	0.1500	0.2025	0.2600	0.4287	A	A	A	A	**Arterial**
Milepost 60.85 to mp 68.08		7.23	8603.7	8.296	1190	1606	2063	3401	0.0992	0.1338	0.1719	0.2834	A	A	A	A	**Arterial**
Milepost 68.08 to mp 68.20		0.12	136.8	0.132	1140	1539	1976	3258	0.0950	0.1283	0.1647	0.2715	A	A	A	A	**Arterial**
Milepost 68.20 to mp 69.14		0.94	1254.9	1.210	1335	1802	2314	3815	0.1113	0.1502	0.1928	0.3179	A	A	A	A	**Arterial**
Milepost 69.14 to mp 69.59		0.45	380.3	0.367	845	1141	1465	2415	0.0704	0.0951	0.1221	0.2013	A	A	A	A	**Arterial**
Milepost 69.59 to mp 73.39		3.8	1995.0	1.924	525	709	910	1500	0.0438	0.0591	0.0758	0.1250	A	A	A	A	**Arterial**
Milepost 73.39 to mp 88.27		14.88	6026.4	5.811	405	547	702	1157	0.0338	0.0456	0.0585	0.0964	A	A	A	A	**Arterial**
Milepost 88.27 to mp 116.51		28.24	11013.6	10.619	390	526	676	1114	0.0325	0.0438	0.0563	0.0928	A	A	A	A	**Arterial**
Milepost 116.51 to mp 125.80		9.29	3808.9	3.673	410	553	711	1172	0.0342	0.0461	0.0593	0.0977	A	A	A	A	**Arterial**
Milepost 125.80 to mp 136.02		10.22	3270.4	3.153	320	432	555	914	0.0267	0.0360	0.0463	0.0762	A	A	A	A	**Arterial**
SR-12					**UDOT 2006 AADT**												
Milepsot 110.52 to mp 115.00		3.88	853.6	0.823	220	297	381	629	0.0183	0.0248	0.0318	0.0524	A	A	A	A	**Arterial**
Milepost 115.00 to mp 116.77		1.77	389.4	0.375	220	297	381	629	0.0183	0.0248	0.0318	0.0524	A	A	A	A	**Arterial**
Milepost 116.77 to mp 118.18		1.14	364.8	0.352	320	432	555	914	0.0267	0.0360	0.0463	0.0762	A	A	A	A	**Arterial**
Milepost 118.18 to mp 122.86		4.68	1263.6	1.218	270	364	468	772	0.0225	0.0303	0.0390	0.0643	A	A	A	A	**Arterial**
SR-72					**UDOT 2006 AADT**												
Milepost 0.00 to mp 1.19		1.19	779.5	0.752	655	884	1135	1872	0.0873	0.1179	0.1513	0.2496	A	A	A	A	**Major Collector**
Milepost 1.19 to mp 4.27		3.08	1416.8	1.366	460	621	797	1315	0.0613	0.0828	0.1063	0.1753	A	A	A	A	**Major Collector**
Milepost 4.27 to mp 10.97		6.7	1541.0	1.486	230	310	399	657	0.0307	0.0413	0.0532	0.0876	A	A	A	A	**Major Collector**
Milepost 10.97 to mp 33.54		22.57	2934.1	2.829	130	175	225	371	0.0173	0.0233	0.0300	0.0495	A	A	A	A	**Major Collector**
SR-95					**UDOT 2006 AADT**		2782										
Milepost 0.00 to mp 16.12		16.12	10478.0	10.103	650	877	1127	1857	0.0542	0.0731	0.0939	0.1548	A	A	A	A	**Arterial**
Milepost 16.12 to mp 26.08		9.96	6922.2	6.674	695	938	1205	1986	0.0579	0.0782	0.1004	0.1655	A	A	A	A	**Arterial**
FAR-1670					**UDOT 2006 AADT**												
Milepost 0.00 to mp 22.73		22.73	2273.0	2.192	100	135	173	286	0.0133	0.0180	0.0231	0.0381	A	A	A	A	**Major Collector**
Milepost 22.73 to mp 32.74		10.01	350.4	0.338	35	47	61	100	0.0047	0.0063	0.0081	0.0133	A	A	A	A	**Major Collector**
FAR-3262					**UDOT 2006 AADT**												
Milepost 0.00 to mp 8.12		8.12	4141.2	3.993	510	688	884	1457	0.0680	0.0917	0.1179	0.1943	A	A	A	A	**Major Collector**
FAR-3268					**UDOT 2006 AADT**												
Milepost 0.00 to mp 2.58		2.58	51.6	0.050	20	27	35	57	0.0027	0.0036	0.0047	0.0076	A	A	A	A	**Major Collector**
Milepost 2.58 to mp 13.26		10.68	1441.8	1.390	135	182	234	386	0.0180	0.0243	0.0312	0.0515	A	A	A	A	**Major Collector**
		278.4429	103871.3	100.154													

* Assumed Capacity of 7,500 for Collectors and 12,000 for Arterials for LOS "C"
\+ Assumed V/C ratio of < 0.8 as LOS A, < 0.9 as LOS B, <1.0 as LOS C, and >1.0 as LOS D-F

Percentage VMT
Arterials - 68.817%
Collectors - 31.183 %

APPENDIX 5

August 4, 2010

Nathan Lee
Region Four Director
Utah Department of Transportation
1345 South 350 West
Richfield, UT 84701

Subject: Request for turn lane construction along SR-24 through Wayne County.

Dear Mr. Lee:

This letter is being written in order to bring to the department's attention the need for various turn lane projects along State Route 24 (SR-24) through Wayne County. It is based on discussions with Troy Torgerson and Anne Ogden of UDOT Region Four. The following sites are currently a hazard to the traveling public. The addition of turn lanes at each of the sites would greatly increase safety and function along SR-24. They are listed according to priority with the highest priority sites listed first. This is a short-term request as we work to update and implement our Transportation Master Plan in consultation with UDOT and other agencies.

#1) SR-24 MP 51.37, North of Loa
It is anticipated that what is commonly referred to as Fish Hatchery Road will be relocated to would intersect with SR-24 where Loa's 300 West intersects with SR-24, which is at about MP 51.37. Trucks Traveling South on Fish Hatchery Road are required to perform a reverse maneuver in the middle of SR-24 in order to turn west bound. This maneuver presents an especially dangerous hazard to the public because of the location of the intersection. The intersection sits on a turn and on a hill, and it occurs at a very steep angle with SR-24. The county would like to relocate the intersection outside the town of Loa to the above mentioned location at 300 West. At that location the site distances, grades, and intersection angles would be much safer.

Currently there are left and right turn lanes on SR-24 at the existing intersection. In order to keep the same functionality that exists at the current intersection the proposed intersection would require turn lanes as well. The county proposes that the UDOT build turn lanes at the proposed intersection so that the county can relocate Fish Hatchery Road as described above.

#2) SR-24 MP 54.01, at Center Street to Fremont (Between Loa and Lyman)
Currently much of the traffic that turns toward Fremont off of SR-24 uses the intersection between Lyman and Loa. There are no turn lanes at that location. The speed limit on SR-24 is 65 mph. This makes turning onto Center Street toward Fremont dangerous because of traffic coming behind the turning vehicle at a high speed. Wayne County proposes that left turn and auxiliary lanes be constructed at the above mentioned intersection to improve safety in that area.

#3) SR-24 MP 66.70, at East Teasdale Entrance
There are two intersections along SR-24 that access Teasdale to the south. Currently there is a right turn lane on the west entrance. However, on the east entrance there are no turn lanes. A left turn pocket would be beneficial because most of the west bound traffic on SR-24 that turn toward Teasdale use the east entrance just as most of the east bound SR-24 traffic that turn toward Teasdale use the west

entrance. Therefore, rather than constructing a left turn lane at the west entrance, the county suggests that a left turn pocket be constructed at the east entrance at approximately MP 66.70.

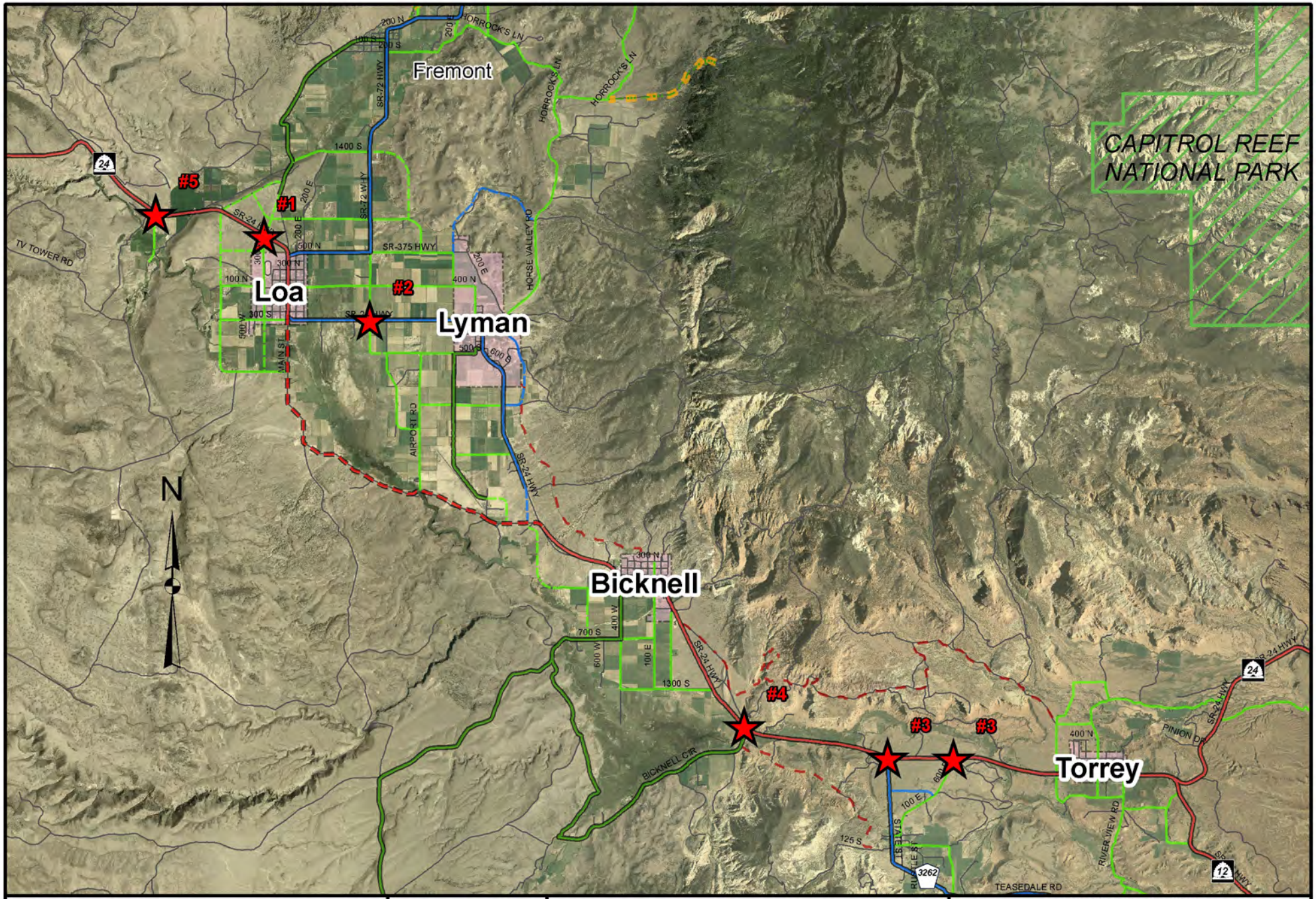
#4) SR-24 MP 63.49, at Bicknell Circle
The next location where the county proposes turn lanes is on SR-24 at the Bicknell Circle intersection. The intersection is located at approximately MP 63.49. There are no existing turn lanes at the location. The intersection is located on a curve so that sight distance is limited. The county suggests that left turn and auxiliary lanes be constructed at the Bicknell Circle intersection.

#5) SR-24 MP 49.64, (at Aspen Ranch) – West Access Only
There are two entrances on SR-24 into the Aspen Ranch area. Most vehicles on SR-24 that turn into Aspen Ranch use the west entrance. The west entrance is located at the base of a steep hill and east bound traffic is required to stop on the hill for traffic making a right turn into Aspen Ranch. Likewise turning west bound traffic on SR-24 must stop and yield for East bound traffic which requires traffic behind the turning vehicle to stop at the base of the hill. The county proposes that left turn and auxiliary lanes be constructed at the west entrance into Aspen Ranch.

The construction of turn lanes at the above mentioned locations are a priority for Wayne County in order to improve safety to the traveling public throughout the county. Thank you for your time and consideration on this matter.

Sincerely,

Thomas Jeffery
Wayne County Commission Chair



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WAYNE COUNTY
TRANSPORTATION MASTER PLAN
INTERSECTION VICINITY MAP

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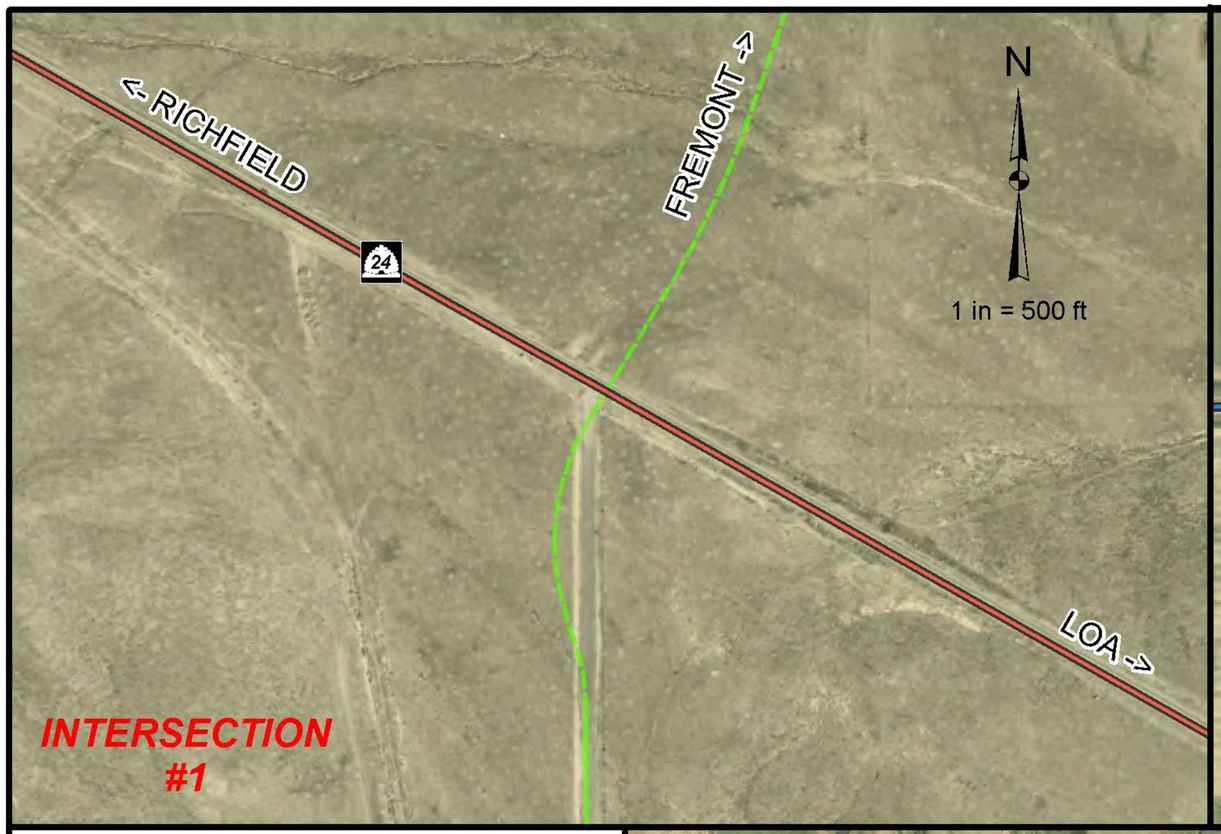

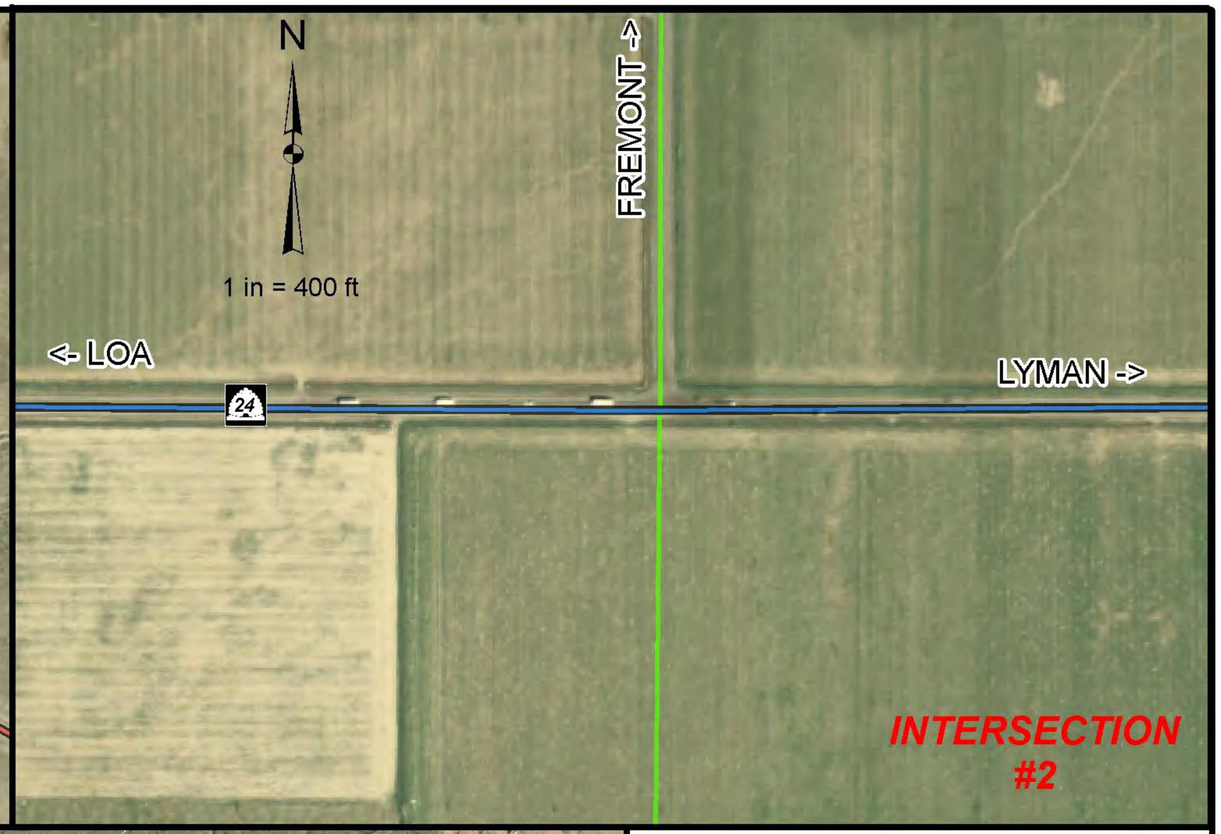

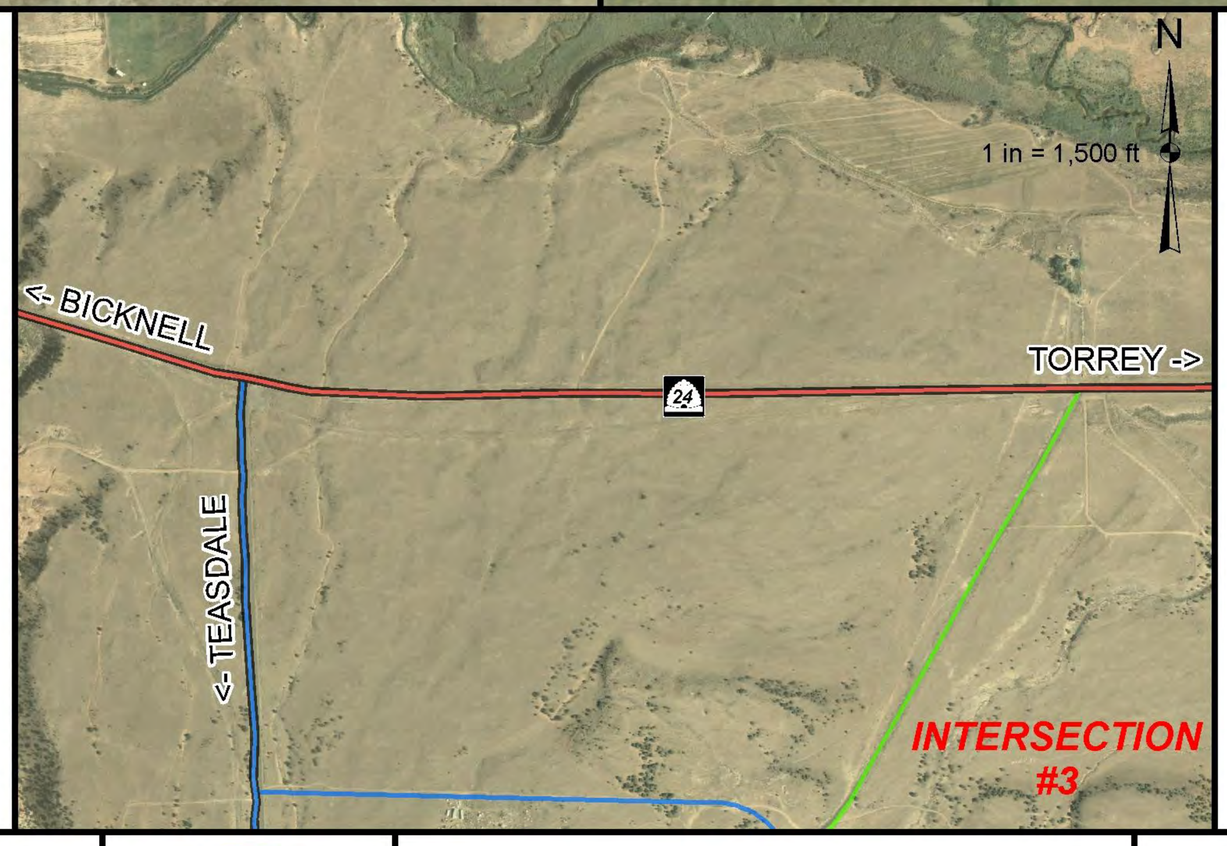

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WAYNE COUNTY

TRANSPORTATION MASTER PLAN

INTERSECTION MAP

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TRANSPORTATION MASTER PLAN
INTERSECTION MAP

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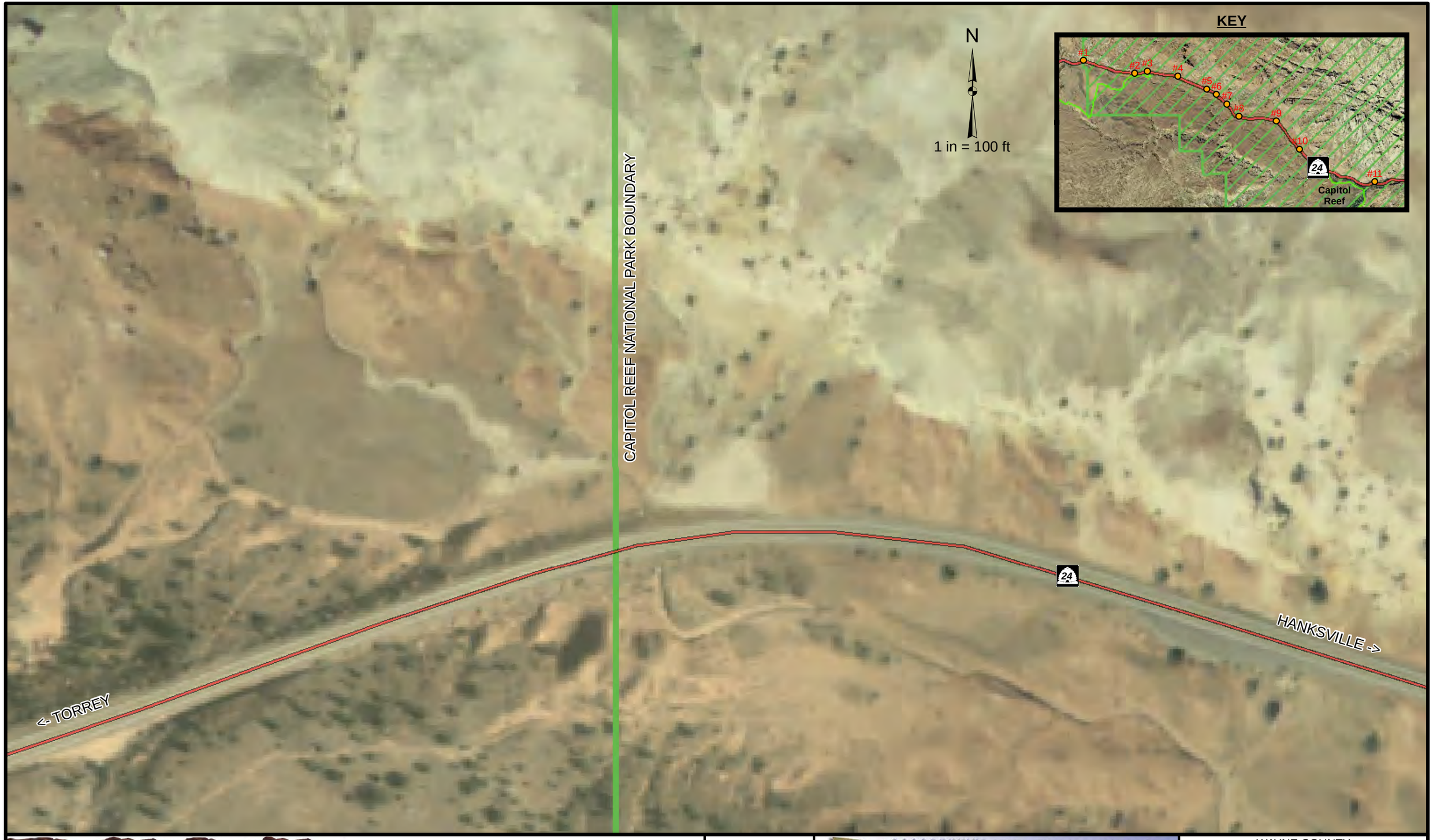
APPENDIX 6



WAYNE COUNTY

TRANSPORTATION MASTER PLAN

TURNOUT #1

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TRANSPORTATION MASTER PLAN
TURNOUT #2

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WAYNE COUNTY

TRANSPORTATION MASTER PLAN

TURNOUT #3

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WAYNE COUNTY

TRANSPORTATION MASTER PLAN

TURNOUT #4

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<- TORREY

N

1 in = 100 ft

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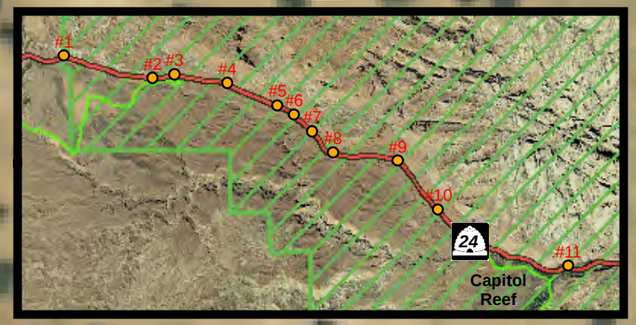

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TURNOUT #5

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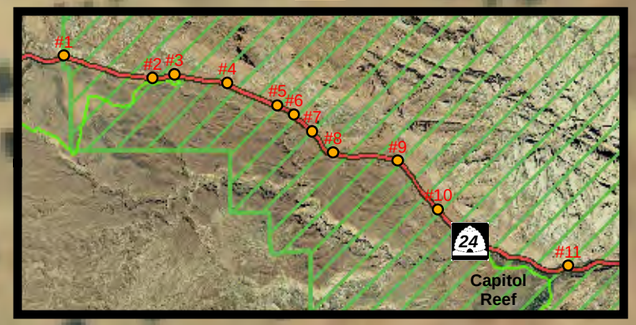

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TURNOUT #6

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TURNOUT #7

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TURNOUT #8

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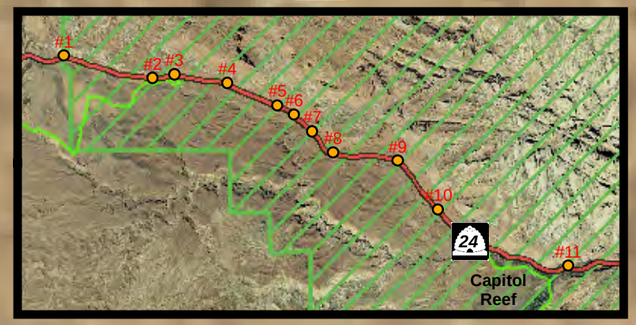

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TURNOUT #9

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TURNOUT #10

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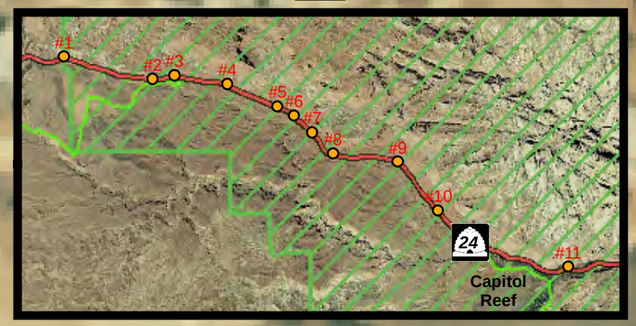

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1 in = 100 ft

24

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WAYNE COUNTY

TRANSPORTATION MASTER PLAN

TURNOUT #11

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