Chapter 2

Transportation System

2.1 Summary and Recommendations

Introduction

Midway City's streets comprise of five typical roadway functional classifications: historic local, local, local collector, minor collector, and collector. Each roadway has a specific cross-section and right-of-way. The street system master plan designates each future street as one of the five types listed above. Developers are required to provide local streets unless the developer's specific traffic study requires a larger functional classification to accommodate the traffic which is generated by the proposed development.

Although residents of the county and outside the county also impact Midway City's street system, the purposes of this study are only to address the six to 10 year development and improvements that will occur within the City and development that will occur within the proposed annexation boundary.

The Transportation Impact Fee is:

Transportation Impact Fee $2,750.00

Projected Population

Midway City's full-time and secondary population is expected to increase to 10,159 people by the end of the 10 year design period in the year 2022. An increase of 1,109 housing units is expected to occur during this period. Additionally, the full time and secondary population is expected to increase to 21,195 people and 6,859 total housing units in the build-out year of 2049.

See Chapter 1 for more details.

Street System Master Plan

Figure 2-1 shows the street system master planned roads. The existing and future streets shown in the Capital Facilities Master Plan reflect the major network of streets, transportation needs, and improvements of the fully developed city under the present existing city limit and proposed annexation boundary. Future streets are those that should be constructed to meet the needs of the projected population. Generally future local streets are not shown within the master plan except for those which are critical to the transportation model.

Development Standards

Midway City's streets comprise of five typical roadway functional classifications: historic local, local, local collector, minor collector, and collector. Each roadway has a specific cross-section

and right-of-way requirement. A description of the pavement widths and right-of-way for the respective streets is shown in Table 2-1 and also on Figure 2-1. The street system master plan designates each existing and future street as one of the five classifications listed above. Developers are required to construct local streets, unless the street master plan recommends a larger street be constructed. If a higher street classification is constructed, the developer is credited for the upgraded street costs.

Table 2-1: Street Classification

Street Classification	Pavement Width	Right-of-Way Width
Collector	48 feet	72 feet
Minor Collector	44 feet	66 feet
Local Collector	34 feet	56 feet
Local	30 feet	50 feet
Historic Local	24 feet	Existing, as Determined by City Council

Driveway and Access Management

Access management is the regulation and design of driveway access. The goal is to reduce accidents while increasing the roadway capacity. Several key components of good access management include corner sight distance and clearances, street and driveway spacing, corridor signal spacing, and roadway median control. The design recommendations listed in Table 2-2 should be observed.

Table 2-2: Access Management Guidelines

Proposed Access Management Guidelines		
Classification	**Street Spacing (ft)**	**Driveway Spacing (ft)**
Collector	300	Note 1
Minor Collector	250	200
Local Collector	200	150
Local	150	100
Historic Local	150	80

Note 1: New driveways are not allowed on collector streets unless approved by City Council.

Upkeep and Maintenance

It is recommended that all streets receive their proper maintenance. The life of a street can be increased by installing the proper crack seal, slurry seal, or chip seal approximately every 5 years or as needed. By applying a 2-inch asphalt overlay every 10 to 15 years, the design life of the street can also be extended. Depending upon the change in loading conditions, such as an increase in large truck or heavy equipment traffic, part or all of the sub-base material may need to be replaced every 15 to 20 years. Based on the existing condition of the roadway, and/or the problems found, a decision should be made as to what types of specific improvements are needed

The original design and construction of the street will also be a major factor in the life of the street.

Street systems offer a wide range of choices in terms of traffic volumes provided. The characteristics of streets are often evaluated in terms of: volume of traffic, travel time, travel frequency, comfort, reliability, convenience, and safety. The term level-of-service is used to describe the relative value of these attributes.

State standards require all streets to maintain a level-of-service "C". At level of service C, stable operation is provided but flows approach the range at which an increase in volume immediately results in traffic delays and a deterioration of service.

Recommended Street System Improvements

Capital improvements recommended to meet the needs of the projected build-out population are shown in Figure 2-1. A detailed listing of the recommended improvements is given in the following paragraphs.

Street Improvements

1 - **300 West, 200 North to 100 South, Historic Local.** This roadway should be improved and widened to a two lane local street.

2 - **450 North / Dairy Lane, Center Street to the end of the Cul-de-sac, Historic Local.** This roadway should be improved and widened to a two lane local street.

3 - **600 North, Center Street to River Road, Local Collector.** This roadway should be reconstructed as a two lane road with selected center turning lanes.

4 - **100 East, 100 North to 150 North, Historic Local.** This roadway should be improved and widened to a two lane local street.

5 - **500 South, Stringtown Road to the Cemetery, Local Collector.** This roadway should be improved and widened to a two lane local collector street.

6 - **200 East, 100 North to 150 North, Historic Local.** This roadway should be improved and widened to a two lane local street.

7 - **Probst Way, Pine Canyon Rd to the end of the Cul-de-sac, Historic Local.** This roadway should be improved and widened to a two lane local street.

8 - **Lime Canyon Road, Homestead Drive to Oak Lane, Local.** This roadway should be improved and widened to a two lane local street.

9 - **100 West/Center, Swiss Farm Way to Alfalfa Circle, Historic Local.** This roadway should be improved and widened to a two lane local street.

10 - **Swiss Alpine Road, Homestead Dr to 980 West, Local.** This roadway should be improved and widened to a two lane local street.

11 - **1400 West, 310 North to the end of the Cul-de-sac, Historic Local.** This roadway should be improved and widened to a two lane local street.

12 - **250 North, Center Street to 100 West, Historic Local.** This roadway should be improved and widened to a two lane local street.

13 - **100 West, 250 North to 100 North, Historic Local.** This roadway should be improved and widened to a two lane local street.

14 - **250 West, 500 South to 970 South, Local Collector.** This roadway should be improved and widened to a three lane local collector street.

15 - **970 South, Center Street to250 West, Local Collector.** This roadway should be improved and widened to a three lane local collector street.

16 - **Michie Lane, Center Street to 325 East, Collector Street.** This roadway should be improved and constructed to a three lane collector street.

17 - **Pine Canyon road, 200 North to Burgi Lane, Local Collector.** This roadway should be improved and widened to a three lane local collector street.

18 - **200/185 South, 100 East to 275 East, Historic Local.** This roadway should be improved and widened to a two lane local street.

19 - **Burgi Lane, Collector.** Because of expected growth Burgi Lane has been constructed as a minor collector street between River Road and Pine Canyon Road. Because of the bond repayment on this road, a percentage of the costs to construct this road have been included in the impact fee.

20 - **Cari Lane, Collector.** This roadway should be widened from a two lane to a three lane roadway from Burgi Lane to Homestead Drive.

21 - **River Road, Collector.** This roadway should be widened from a two lane to a three lane roadway with selected acceleration and deceleration lanes.

22 - **Pine Canyon Road and Burgi Lane, Intersection.** A roundabout should be constructed at this intersection.

23 - **Pine Canyon Road, Burgi North to Warm Springs Road, Local Collector.** This roadway should be improved and widened to a local collector street.

24 - **500 South, 250 West to Stringtown Road, Local Collector.** This roadway should be improved and widened to a local collector street.

25 - **400 East from Main to Michie, Local Collector.** This roadway should be reconstructed and/or constructed to an improved two lane road with selected turning movements.

26 - **Center Street, Main Street to Burgi Lane, Minor Collector.** This roadway should be improved and widened to a minor collector.

27 - **Stringtown Road, 500 South to Tate Lane, Minor Collector.** This road should be improved to a two lane minor collector with selected center turning.

28 - **Stringtown Road and 500 South, Intersection.** A center turning lane should be constructed.

29 - **Stringtown Road and Cascade Springs Road, Intersection.** A center turning lane should be constructed.

30 - **Stringtown Road and 970 South, Intersection.** A center turning lane should be constructed.

31 - **New Local Collector, 600 North, from Center Street to Pine Canyon Road.** A new two lane local collector should be constructed with selected center turning lanes.

32 - **New Local Collector, 970 South, from 250 West to Stringtown Road.** A new two lane local collector should be constructed with selected center turning lanes.

33 - **New Local Collector, 500 South, from 250 West to Center Street.** A new two lane local collector should be constructed with selected center turning lanes.

34 - **New Local Collector, 600 North, from River Road to Provo River.** A new two lane local collector should be constructed with selected center turning lanes.

35 - **New Local Collector, 800 East, from Main Street to River Road.** A new local collector should be constructed with selected center turning lanes.

36 - **New Collector, from 970 South to Fox Den Road.** A new three lane collector with selected left hand turn lane should be constructed.

37 - **New Local Collector, 300 South, from 160 West to 400 West.** A new local collector should be constructed with selected center turning lanes.

38 - **Burgi Lane Traffic Calming.** Traffic calming islands should be installed in Burgi Lane to help control the traffic speeds.

39 - **River Road Traffic Calming.** Traffic calming islands should be installed in River Road to help control the traffic speeds.

40 - **Michie Lane Property Acquisition.** New property will need to be acquired to accommodate the expansion of Michie Lane.

41 - **Homestead Drive, Minor Arterial.** Homestead Road should be improved from a two lane road to a three lane road with selected acceleration and deceleration lanes. This section of road is a state highway, 25 percent of the impact fee funds for this section has been allotted.

42 - **200 North (Homestead Road), Minor Arterial.** Homestead Road should be improved from a two lane road to a three lane road with selected acceleration and deceleration lanes. Because this section of road is a state highway, 25 percent of the impact fee funds for this section have been allotted.

43 - **Center Street, Main to 500 South, Minor Arterial.** This section of roadway should be improved from a two lane road to a three lane road with selected acceleration and deceleration lanes. Because this section of road is a state highway, 25 percent of the impact fee funds for this section have been allotted.

44 - **Main Street and River Road, Intersection.** A roundabout should be constructed. Because this section of road is a state highway, 25 percent of the impact fee funds for this section have been allotted.

45 - **Center Street and Main Street, Intersection.** A roundabout should be constructed. Because this section of road is a state highway, 20 percent of the impact fee funds for this section have been allotted.

46 - **Main Street improvements.** Main Street should be continued from 300 East to the eastern city boundary as UDOT funds are available. Because this section of road is a state highway, 25 percent of the impact fee funds for this section have been allotted.

2.2 Future Conditions

Introduction

Future conditions in Midway City will affect the street conditions and the improvements needed to meet the increased population. Some of the assumptions used to determine the future conditions are:

- Present growth rates
- Future growth rates
- Economic stimuli
- Environmental and recreational development
- Residential development

As the factors and conditions change, the projected future conditions made in this study could be affected. In this chapter the 10 year projected population is used to determine where the new streets should be constructed and what roadway classification the street should be constructed to based on the potential for development within each portion of the City.

Street Impact Fees Administration

An impact fee is a one-time fee with the purpose of raising revenue for new or expanded public facilities which have deteriorated due to new development, or as required by the new development. Impact fees cannot be used to correct existing roadway sub-grade deficiencies or for routine maintenance activities. The premise behind impact fees is based on the critical assumption that if no new development were to occur, the existing street system would adequately serve the existing needs of the City. Therefore, the recommended roadway improvements outlined in the street system master plan are used in the development of the impact fees. These improvements are growth related and are needed to accommodate the 10 year projected growth within the City to maintain a minimum level of service ("C").

Trip Generation Rates

The Midway City Planning Area Map was converted to potential vehicle trips through applying specific trip generation rates required for each land use category as established in the Institute of Transportation Engineers (ITE) Trip Generation Manual 5th Edition. Trip generation rates established for each of the land uses were derived by selecting the most appropriate type and amount of development as determined from the City's Zoning Map. Selected trip generation rates for residential land uses are summarized in Table 2-3.

Table 2-3: Trip Generation Rates

Dwelling Unit Type	Trips Generated
Single Family Detached Housing	9.55
Apartment	6.47
Mobile Home Park	4.81

Because of the wide range of different types of commercial and light industrial development that occurs in Midway, these impact fees are determined on an individual basis. The impact is based on the amount of new trips generated by the individual business.

Impact Fees

The calculation for street impact fees consists of dividing the total cost of the recommended improvements during the 10 year planning period by the total number of projected trips, based on future zoning and the 10 year population increases. The improvements and associated costs for the planning period are shown in Table 2-4.

Impact Fee Fund

Street improvements must be made to provide safety and access to property as future growth occurs. Revenue must be generated to fund the needed street improvements. This Capital Facility Transportation Master Plan recommends that Midway City assess a street impact fee of $288 per trip generated. This fee equals $2,750 per ERU and $1,863 per unit for apartment housing. The revenue collected will generate the funds required to update the necessary improvements caused by growth and to maintain a minimum level of service C.

To keep abreast of increasing inflation and construction costs, the transportation impact fees should be analyzed periodically to make sure funding is available for improvements and capital expenditures.

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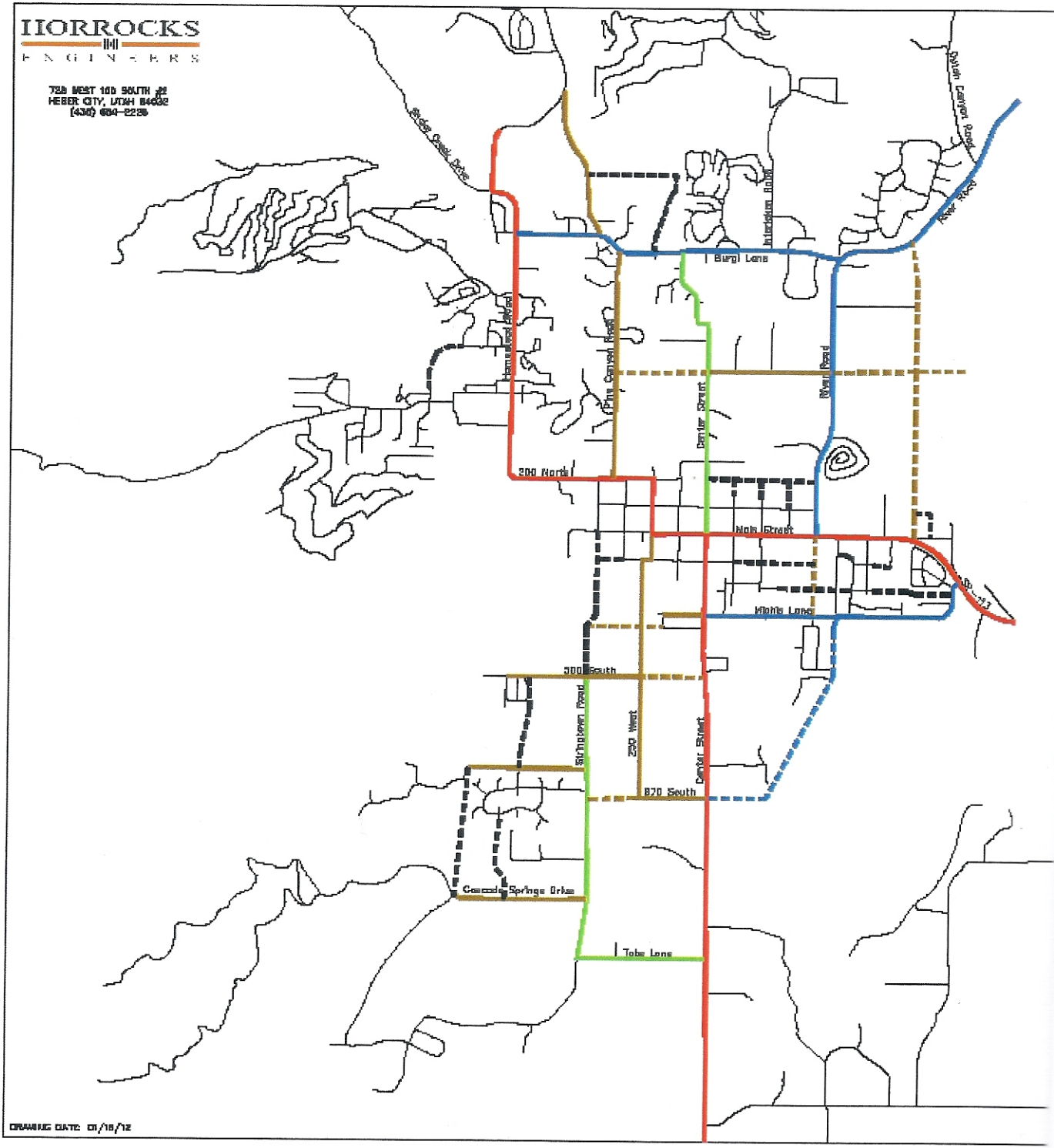


DRAWING DATE: 01/18/12

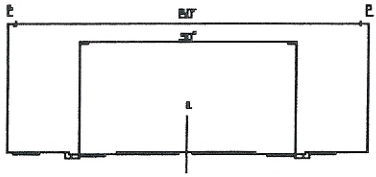
FIGURE 2-1

MIDWAY CITY

ROAD SYSTEM MASTER PLAN

LEGEND

- EXISTING LOCAL COLLECTOR
- EXISTING MINOR COLLECTOR
- EXISTING COLLECTOR
- EXISTING MINOR ARTERIAL (UDOT)
- NEW OR UPGRADED LOCAL
- NEW OR UPGRADED LOCAL COLLECTOR
- NEW OR UPGRADED MINOR COLLECTOR
- NEW OR UPGRADED COLLECTOR



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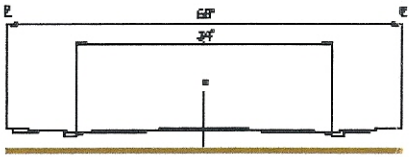

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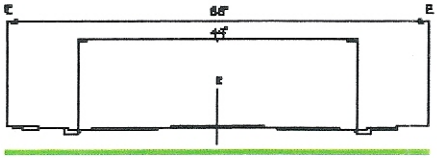

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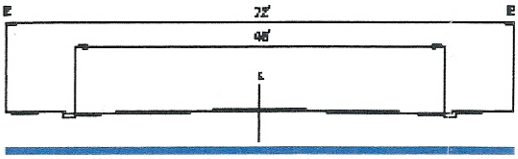

COLLECTOR STREET
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