



City of Grand Forks Staff Report

Service/Safety Committee – August 26, 2014

Agenda Item: Transportation Infrastructure Needs Analysis

Submitted by: Engineering Department, Allen R Grasser, PE (City Engineer)
Mark S. Walker, PE (Assistant City Engineer)

For Information Only

BACKGROUND:

The Upper Great Plains Traffic Institute (UGPTI) has been tasked with developing a comprehensive study of transportation needs for cities in North Dakota. To assist UGPTI with this task, staff has identified transportation needs and cost analysis within the City and has provided that data to UGPTI. A copy of the information provided to UGPTI is attached to this staff report.

In general, costs were compiled utilizing the Long Rang Transportation Plan (LRTP) and average costs of recently bid projects. All costs were reported in 2014 dollars and included Engineering costs and contingencies. Costs for projects in which a City share is not required, such as I-29, Gateway Drive, Kennedy Bridge, are not included in the following costs. Also not included are costs for the Merrifield Road Interchange and Merrifield Road Red River Bridge projects although they were included in the LRTP. Transportation needs of both the classified network and the local network were reported in the following three categories:

1. Maintenance Needs (seal coats, overlays, concrete panel replacement, etc. but excluding routine work by Public Works personal such as crack sealing, pothole patching, snow plowing, street cleaning, etc.)
2. Improvement Needs (reconstructing existing roadways without adding additional lanes)
3. Enhancement/Expansion Needs (expanding the roadway system by constructing new roadways, structures, or adding additional lanes, etc.)

ANALYSIS AND FINDINGS OF FACT:

The following transportation needs were reported to UGPTI:

- Classified Street Network Included in LRTP:

Maintenance Needs:	\$60m/25 years	or	\$2.4m/year
Improvement Needs:	\$77m/25 years	or	\$3.1m/year
Enhancement/Expansion Needs:	\$219m/25 years	or	\$8.7m/year

- Classified Street Network Not Included in LRTP:

Maintenance Needs:	\$35m/25 years	or	\$1.4m/year
Enhancement/Expansion Needs:	\$22m/25 years	or	\$0.9m/year

- Local Street Network:

Maintenance Needs:	\$63m/20 years	or	\$3.2m/year
Improvement Needs:	\$70m/20 years	or	\$3.5m/year
Enhancement/Expansion Needs:	\$134m/20 years	or	\$6.7m/year

- Transportation Support Systems:

Traffic Signals:	\$20m/20 years	or	\$1.0m/year
ADA Curb Ramps:	\$6.3m/20 years	or	\$315k/year
Shared Use Paths:	\$8.4m/20 years	or	\$420k/year

SUPPORT MATERIALS:

- Transportation Infrastructure Needs Executive Summary Analysis (5 pages)

**TRANSPORTATION INFRASTRUCTURE
NEEDS EXECUTIVE SUMMARY ANALYSIS**

For

CITY OF GRAND FORKS

Prepared for

**UPPER GREAT PLAINS TRANSPORTATION
INSTITUTE**

Introduction

The Upper Great Plains Transportation Institute (UGPTI) has been tasked with developing a comprehensive study of transportation needs for cities in North Dakota. In order to assist in that endeavor, the City of Grand Forks is identifying the street and highway component of needs within the City. This report is intended to be an “Executive Summary” of those efforts.

Methodology:

The basic methodology for this report is intended to be similar to those used in the Long Range Transportation Plan (LRTP) prepared by the local Metropolitan Planning Organization (MPO).

The LRTP provides the backbone analysis of the classified street network within the metropolitan area. This document is intended to provide a summary of those needs. In addition to the classified street network, this document will provide information on the local network needs.

Costs are generally represented in terms of 2014 construction costs based on bids received during the 2014 construction season. Annual costs are not adjusted for inflation but include engineering costs.

Meeting with UGPTI:

On July 16, 2014, representatives of UGPTI met with local MPO and City of Grand Forks representatives to outline what information they were looking for. We reviewed the LRTP which had previously been supplied by the MPO. Per that meeting, it is understood that the intent of the study would be to cover a 20 year planning period. It was noted that the transportation needs of both the classified network and local network would be reported by UGPTI in three categories:

1. Maintenance Needs* (seal coats, overlay, concrete panel replacement, etc.)
2. Improvement Needs (reconstructing existing roadways without adding additional lanes)
3. Enhancement/Expansion Needs (expanding the roadway system by constructing new roadways or adding additional lanes, etc.)

*A note on Maintenance Needs: The costs provided are what would typically be projects that are contracted out. Routine crack sealing, pothole patching, snow plowing, street cleaning, etc. are typically done by the street department. The operating and capital costs of that department are not reflected in this document.

Classified Street Network Included in LRTP:

The LRTP contains a large amount of detailed information regarding this network. The document identifies that the majority of expected federal funding dollars will be spent on the relatively small portion (by miles) of the highest traffic volume streets just to keep them in a “state of good repair”. This means many of the maintenance improvements will need to be addressed with non-federal funds.

It is worthy to note that the LRTP is a 25 year planning document, costs include inflation to the year of expenditure, and costs do not include engineering. An approximate summary of the data in the LRTP will be provided below. Costs will be reported with engineer, contingencies, and an allowance for utility relocations to represent total costs. Costs are represented in 2014 dollars. Due to how costs are calculated and staff interpretation of categories, these numbers will not relate directly back to various tables and lists within the LRTP.

It is further noteworthy to mention that various projects listed in the LRTP are not included in the following costs. MnDot projects, interchange and river crossing at Merrifield Road, I-29 projects, and other projects in which the City is not responsible for a local share (such as Highway #2, Kennedy Bridge, etc.) are not included in the following costs.

Maintenance Needs:	\$60m	Total
	\$2.4m	Annual
Improvement Needs:	\$77m	Total
	\$3.1m	Annual
Enhancement/Expansion Needs:	\$219m	Total
	\$8.7m	Annual

Classified Street Network Not Included in LRTP:

There are a number of existing streets that are not included in the LRTP as the plan needed to be fiscally constrained. It is expected that most of these street will need varying levels of maintenance over the next 25 years. To account for this, we assumed a consistent level of maintenance needs over all of these streets consisting of a maintenance project equivalent to a mill and overlay. These streets are represented below.

There are also a number of streets that are on the fringes of the City's expected growth area but are not included in the LRTP. These streets are also represented below.

Maintenance Needs:	\$35m	Total
	\$1.4m	Annual
Enhancement/Expansion Needs:	\$22m	Total
	\$0.9m	Annual

Local Street Network*:

Maintenance Needs:	\$63m	Total
	\$3.2m	Annual
Improvement Needs:	\$70m	Total
	\$3.5m	Annual
Enhancement/Expansion Needs:	\$134m	Total
	\$6.7	Annual

*A note on the local system analysis. Maintenance needs are based on an analysis of pavement condition ratings. The last database available at the time of writing of this report was completed in 2008. An analysis of pavements in 2014 would show some variations in pavement condition, and streets that have been added to the network subsequent to 2008. Lastly, the local system needs are considered over a 20 year period.

Transportation Support Systems:

There are a couple of key items that support the basic pavement layout and driving surface. Needs for some of those systems are identified below:

Traffic Signals – costs to replace fixtures, computers, software, etc.	\$20m	Total
	\$1.0m	Annual
ADA Curb Ramps – although the City has had a ramp program for over 20 years, very few are in compliance with today's standards.	\$6.3m	Total
	\$315k	Annual

Shared Use Paths* – over the last few decades, the City has greatly expanded its network of shared use paths. This aging network will require significant maintenance efforts over the next 20 years to maintain the system in a state of good repair.

\$8.4m	Total
\$420k	Annual

*It should be noted that the above estimated costs for maintaining existing shared use paths do not include approximately 10 miles of paved paths within the Grand Forks Greenway.