Minneapolis Public Works Transportation Infrastructure Study
• Background
• Study Objective
• Summary of Results
• Next Steps and Policy Questions
Background:

• Currently, funding availability drives infrastructure investment decisions.
• Existing funding is inadequate.
• City needs to plan its future.
• Information needed to guide tough decisions.
Objective:
Provide the Mayor, City Council, and Public Works Leadership with policy choices and the background information necessary to support informed policy decisions related to the existing transportation infrastructure:

– Prioritize how available funding should be invested/allocated.

– Determine whether/how to pursue new funding sources.
Infrastructure Included in Analysis:

- Bridges
- Streets and Alleys
- Street Lights
- Traffic Signals
Other needs not included in study:

- Traffic Signs
- Greenspaces
- Bicycle trails
- Pavement markings
- New/expanded infrastructure
1. What condition is the infrastructure in?

2. What is its future condition based on current funding levels? …..based on more funding?

3. How does our funding and infrastructure condition compare to other comparable cities?

4. How can the city get more funding?
Existing Inventory & Current Conditions

Street Pavement

Before

After
- Pavement Inventory – 1,286 miles total
  - Municipal State Aid (MSA)- 206 miles
  - Residential - 632 miles
  - Local - 70 miles
  - Alleys - 378 miles
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**MSA Network**
*Current Average PCI = 65*

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<th>Total Centerline Miles</th>
<th>Pavement Condition Index</th>
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Values:
- 5.47
- 2.21
- 9.17
- 13.89
- 28.06
- 31.91
- 36.02
- 35.57
- 18.31
- 23.90
Residential Network
Current Average PCI = 71
Local Network
Current Average PCI = 52

Pavement Condition Index

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Minneapolis City of Lakes

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Alley Network
Current Average PCI = 50

Pavement Condition Index

Total Centerline Miles

- 0-10: 48.40
- 11-20: 33.43
- 21-30: 45.23
- 31-40: 56.99
- 41-50: 67.16
- 51-60: 54.78
- 61-70: 39.46
- 71-80: 18.05
- 81-90: 7.05
- 91-100: 5.53
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Projected PCI for All Networks
@ Current Funding Levels 2011-2030

- MSA
- Residential
- Local
- Alleys
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Projected Condition – MSA priority

Year

Pavement Condition Index

MSA
Residential
Local
Alley
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Preferred Scenario

- MSA
- Residential
- Local
- Alley

Year
Pavement Condition Index
0 10 20 30 40 50 60 70 80 90 100
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MSA Capital Investment
(Avg $1k/Yr)

Current
Preferred

$20,000
$15,000
$10,000
$5,000
$-

MSA Preventive Maintenance
(Avg $1k/yr)

Current
Preferred

$1,000
$800
$600
$400
$200
$-

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Local Network Capital Investment
(Avg $1k/yr.)

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Alleys Capital Investment
(Avg $1k/yr)

- Current
- Preferred
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Total Capital Investment All Networks (Avg $1k/yr)

Current

Preferred

$45,000

$40,000

$35,000

$30,000

$25,000

$20,000

$15,000

$10,000

$5,000

$-
• Bridges

Camden Bridge, left; Plymouth Avenue Bridge, above

Source: KSTP
Minneapolis Bridges by Type
Total of 89

- **River Crossings:** 4 (5%)
- **Box Culverts:** 8 (9%)
- **Standard Bridges (over 10,000 SFT):** 11 (12%)
- **Small Bridges (under 10,000 SFT):** 66 (74%)
Bridge Sufficiency Rating

- Functionally Obsolete: 24%
- Structurally Deficient: 8%
- Adequate: 68%
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Bridge Age

- Unknown: 1 (1%)
- 75+ years: 36 (40%)
- 41 - 74 years: 10 (11%)
- 25 - 40 years: 13 (15%)
- 0 - 24 years: 23 (33%)
Bridge Service Life Standards:

- 75 year service life.

- Preventive maintenance following recommended industry standards for each structure.
Financial assumptions

• Current: Limited preventive maintenance occurs, otherwise all maintenance is reactive. Bridges are replaced or rehabilitated only when state or federal funding is secured.

• Ideal: Service life and maintenance standards are met for all bridges.

• Constrained: Bridges are rehabilitated or replaced at service life standard interval but maintenance funding is not increased from current levels.
Ideal Bridge Funding (89 city vehicular bridges)

• Replacement and Rehabilitation (capital program):
  – $3.1M/year average needed.
  – Averaged $2.9M/year in 2000-2011.

• Maintenance funding:
  – Additional $450k/year for bridge maintenance needed.
Other Bridge Needs:

• Midtown Greenway Bridges
• Railroad bridges
• “Betterments” for State and County bridges
Existing Inventory & Current Conditions
Traffic Signals
• 793 signalized intersections.
• Costs generally shared based on intersection legs.
Condition of signals

• Signal poles and underground wiring:
  – Most exceed the 30-year service life.

• Signal controllers/cabinets:
  – 340 of the 793 intersection exceed 15-year service life, but will be replaced with federal funding.
  – 433 don’t exceed the 15-year service life now but are aging.
Traffic Signal Service Life Standards:

• Complete System Rebuild/Replacement: 30 years ($150k-$200k each).

• Cabinet/Controller Replacement: 15 years ($36k each).

• Signal Timing Updates: 5 years ($3k each).

• Annual preventive maintenance to prolong life ($3.5k per year per intersection).
Financial assumptions

- **Current:** Reactive maintenance with minimal system replacement, primarily in conjunction with street reconstruction projects.

- **Ideal:** Service life standards are met for all signals.

- **Constrained:** Service life standards are met for ~500 intersections that are most critical for traffic flow. Remaining intersections continue to receive only reactive maintenance and replacement with major capital projects.
Traffic Signal Funding Levels
Impact of underfunding

• Inefficiency of traffic flow
  – Traffic diversion to side streets and neighborhoods.
  – Negative economic impact.
  – Increased fuel usage .

• Aesthetic concerns (rusty poles).
Existing Inventory & Current Conditions
Streetlights
• 41,000 streetlights in City
  – 25,000 Xcel wood pole lights (cost excluded from analysis).
  – 14,200 city owned streetlights.
  – 1,900 parkway streetlights.
Streetlight Service Life Standards:

- Replacement Cycle: 30 years ($5,500 – $8,400/pole).

- Annual preventive maintenance to prolong life: 10% of system per year ($450/pole).

- Minor Repairs: 8% of system per year ($800/pole).

- Pole Damage Repair: 0.5% of system per year ($2,750/pole).
Scenario Descriptions

• Current: Reactive maintenance with minimal system replacement. Major system replacement only if cost is 100% assessed to property owners.

• Ideal: Service life standards are met for all streetlights.

• Constrained: Service life standards are met for the Central Business District and pedestrian corridors. Remaining areas continue to be served at current service level.
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Streetlight System Total Annual Investment

- Ideal Scenario
- Constrained Scenario
- Baseline Scenario


Millions

$10 $9 $8 $7 $6 $5 $4 $3 $2 $1 $0
Impact of underfunding

• Reduced pedestrian and bicycle safety.
• Livability (perceived safety, comfort level while walking biking).
• Aesthetic concerns (rusty poles, caution tape, broken light bases, etc.).
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Peer Cities Review

Seattle
Denver
St. Paul
Peer Cities Review Summary
(Seattle, Denver, and St. Paul)

Pavement Findings
• A PCI goal of 70 is used in 2 of the 3 cities for arterials.
• Mpls does far less reconstructions annually than the other three cities but does more in seal coats.
• The range of total annual budget for pavements is $22M-$36M. Mpls lags and only spends about $15M.
• Each Peer City has some kind of unique funding mechanism to supplement general levies.
Peer Cities Review Summary
(Seattle, Denver and St. Paul)

Bridge Findings

• Mpls is in line with the other cities for total annual expenditures (capital and maintenance).
• Seattle has a policy for the removal of obsolete or unsafe bridges no longer deemed essential.
Peer Cities Review Summary (Seattle, Denver and St. Paul)

Traffic Findings

- There are no universal performance standards for signals or street lights.
- Reactionary maintenance is the norm, depending on funding, equipment and complaints.
- Two of the three cities, street lights are handled entirely by an outsourced agency.
- Mpls annual spending for signals is comparable.
- Mpls annual spending for street lights is low.
- All cities perform routine inspections and evaluations of systems on a regular basis.
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Funding Alternatives from other cities

Key Finding: Each peer city has some kind of unique funding mechanism to supplement general levies.

Currently authorized in Minnesota

- Special property tax levy (i.e. Seattle’s Bridge the Gap program)
- Street light utility (previously considered but not adopted by Minneapolis)

May require additional legislation

- Commercial parking tax (Seattle)
- Occupational Privilege Tax (Denver)
- Wheelage tax (only authorized by Counties in Minnesota)
- Local sales tax (Denver)
- City TAB fees (Seattle)
- Street utility/user fees (Oregon, Colorado)
Big Picture Conclusions:

• Inadequate investment in infrastructure.
• No easy paths to increased investment, but there are options.
• Thoughtful prioritization is critically important.
• Comprehensive asset management program is important.
Next Steps:

- PW will continue to refine analysis and understanding.
- Policy discussion about pursuing new funding sources for infrastructure.
- Policy discussion about relative priority of different infrastructure.
- Policy discussion about different infrastructure management strategies.
Types of policy questions that need to be considered:

• Is the city willing to invest more to improve the condition of the infrastructure? If so, what funding mechanisms are supported?

• Should arterial streets be kept in better condition than residential streets?
Types of policy questions that need to be considered:

- Which elements of the infrastructure is it most important to maintain?
- How do we balance different priorities in different neighborhoods?
Types of policy questions that need to be considered:

• Is it more important to do preventive maintenance to preserve what we have in the most cost-effective manner over the life of the asset, or to repair the infrastructure in the worst condition first?

• Are we willing to consider closure and removal of bridges?
What future will we choose to have?