Public Works Transportation Infrastructure Study

Minneapolis
City of Lakes

Public Works Transportation Infrastructure Study

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.**

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Infrastructure Included in Analysis:

- Bridges
- Streets and Alleys
- Street Lights
- Traffic Signals

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Other needs not included in study:

- Traffic Signs
- Greenspaces
- Bicycle trails
- Pavement markings
- New/expanded infrastructure

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Background:

- Currently, funding availability drives infrastructure investment decisions
- Existing funding is inadequate
- City needs to plan its future
- Information will assist with tough decisions

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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?

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Existing Inventory & Current Conditions

Street Pavement

Before

After

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Pavement Condition Index (PCI)

- The **Pavement Condition Index** (PCI) is a numerical index between 0 and 100 that is used to indicate the condition of a roadway. It is a statistical measure and is based on a visual survey of the pavement. A numerical value between 0 and 100 defines the condition with 100 representing an excellent pavement.

Before

After

PCI Categories

- Very Good 100-88
- Good 87-75
- Fair 74-60
- Poor 59-35
- Very Poor 34-1

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PCI=100 (Very Good)

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PCI=82 (Good)

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PCI=71 (Fair)

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PCI=53 (Poor)

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PCI=44 (Poor)

Example of concrete street

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PCI=17 (Very Poor)

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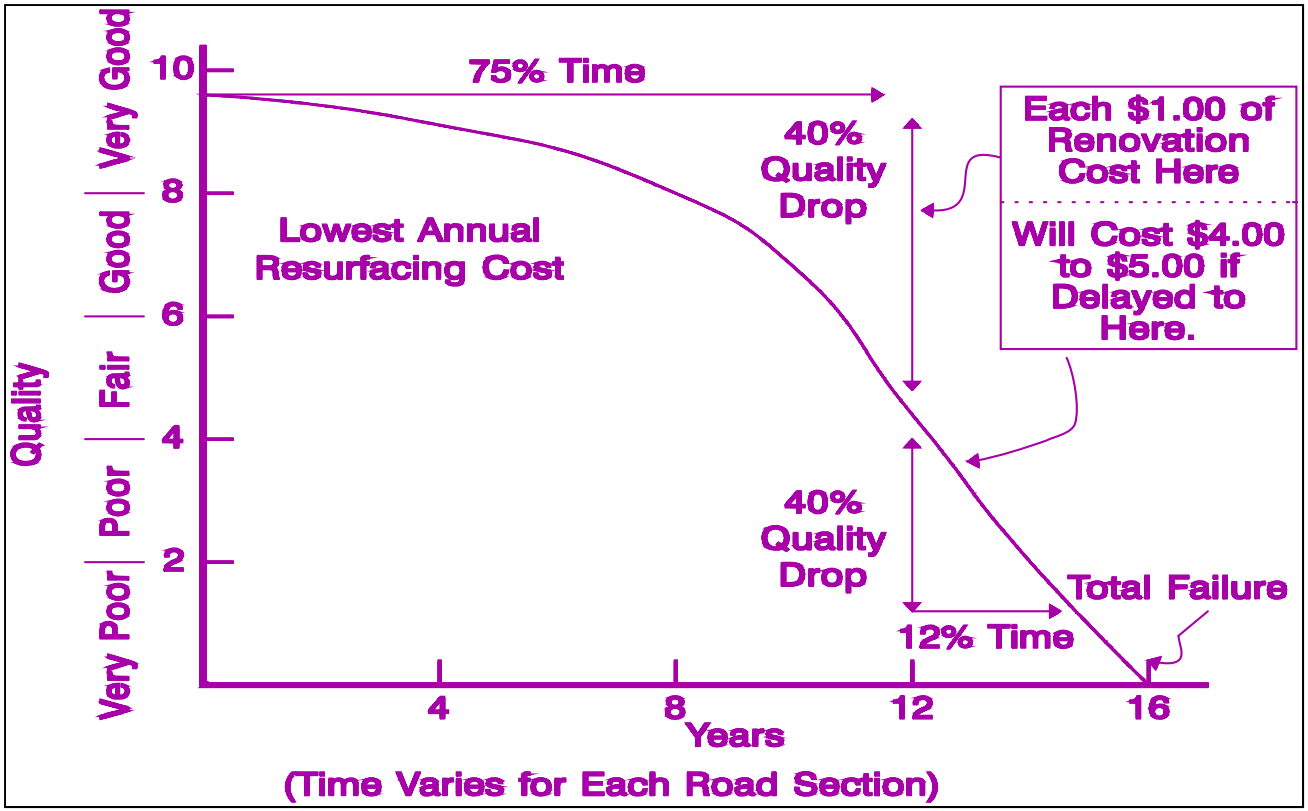
Pavement life cycle



Source: America Public Works Association, The Hole Story

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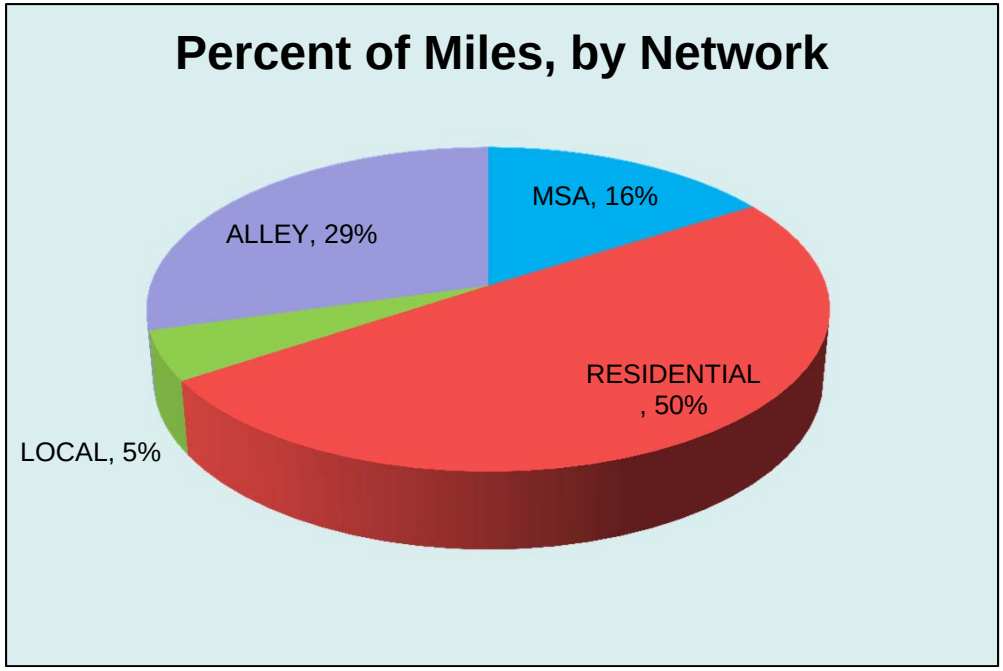
- Pavement Inventory
  - Municipal State Aid - 206 miles
  - Residential – 632 miles
  - Local – 70 miles
  - Alleys – 378 miles



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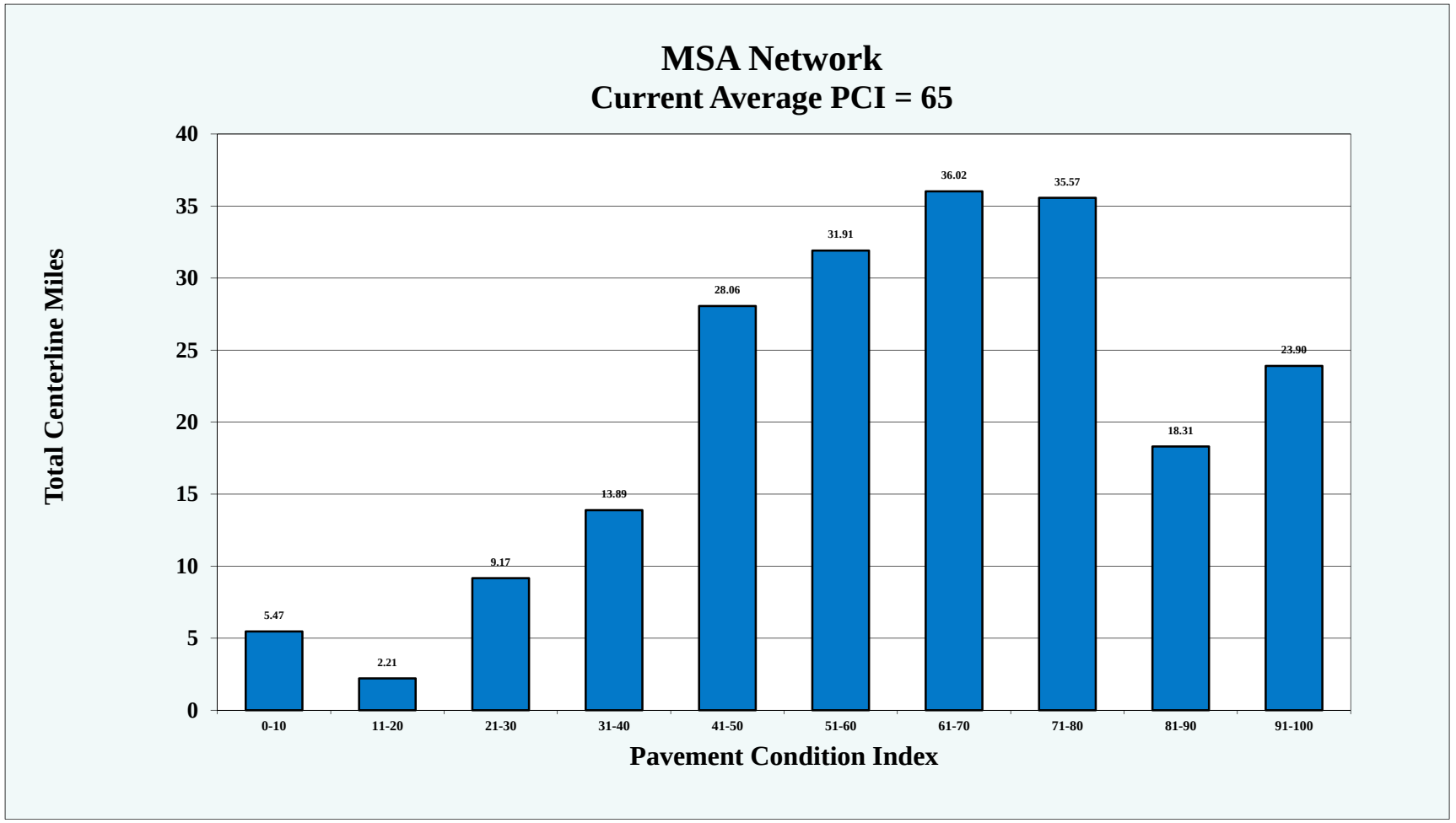

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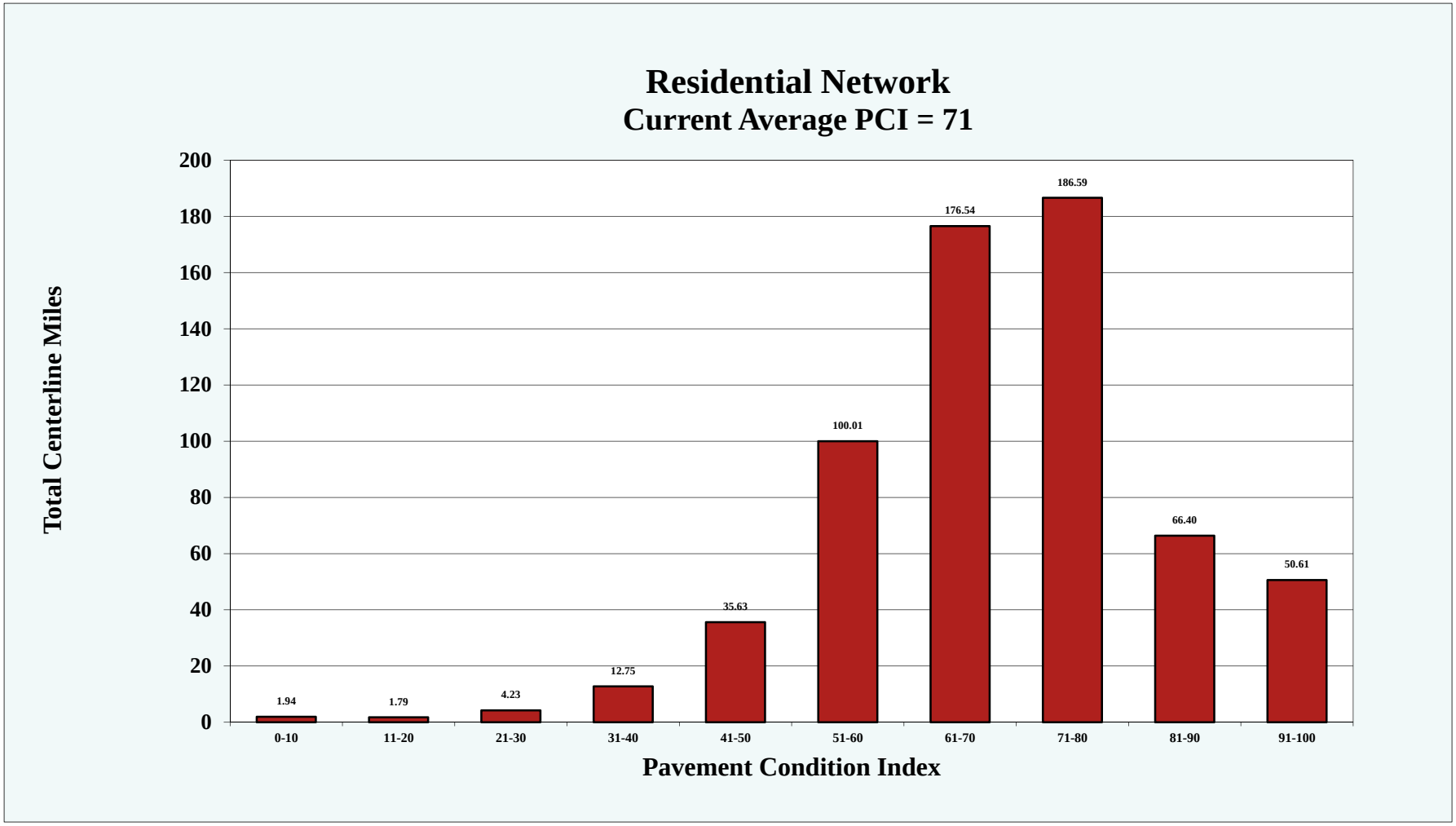

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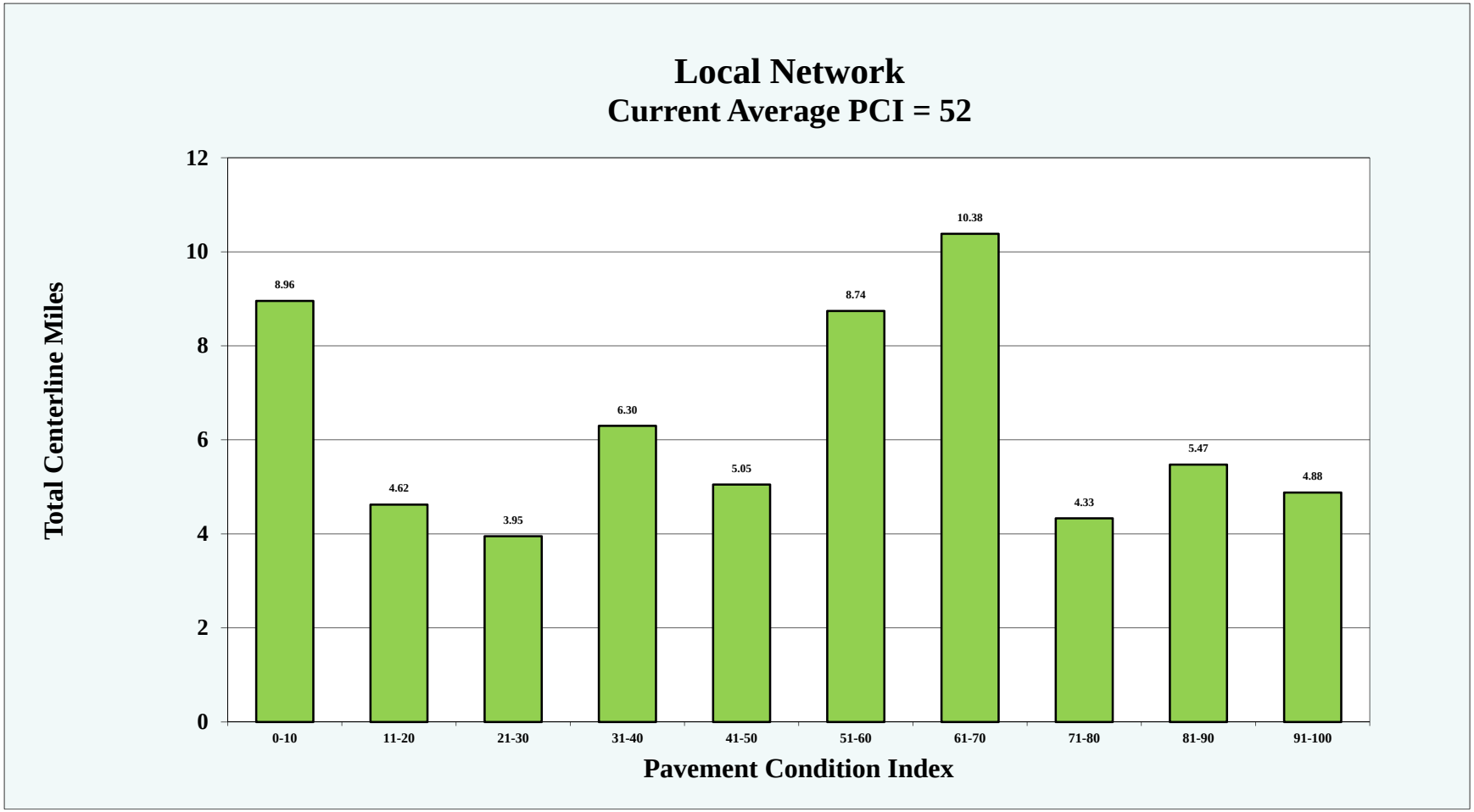

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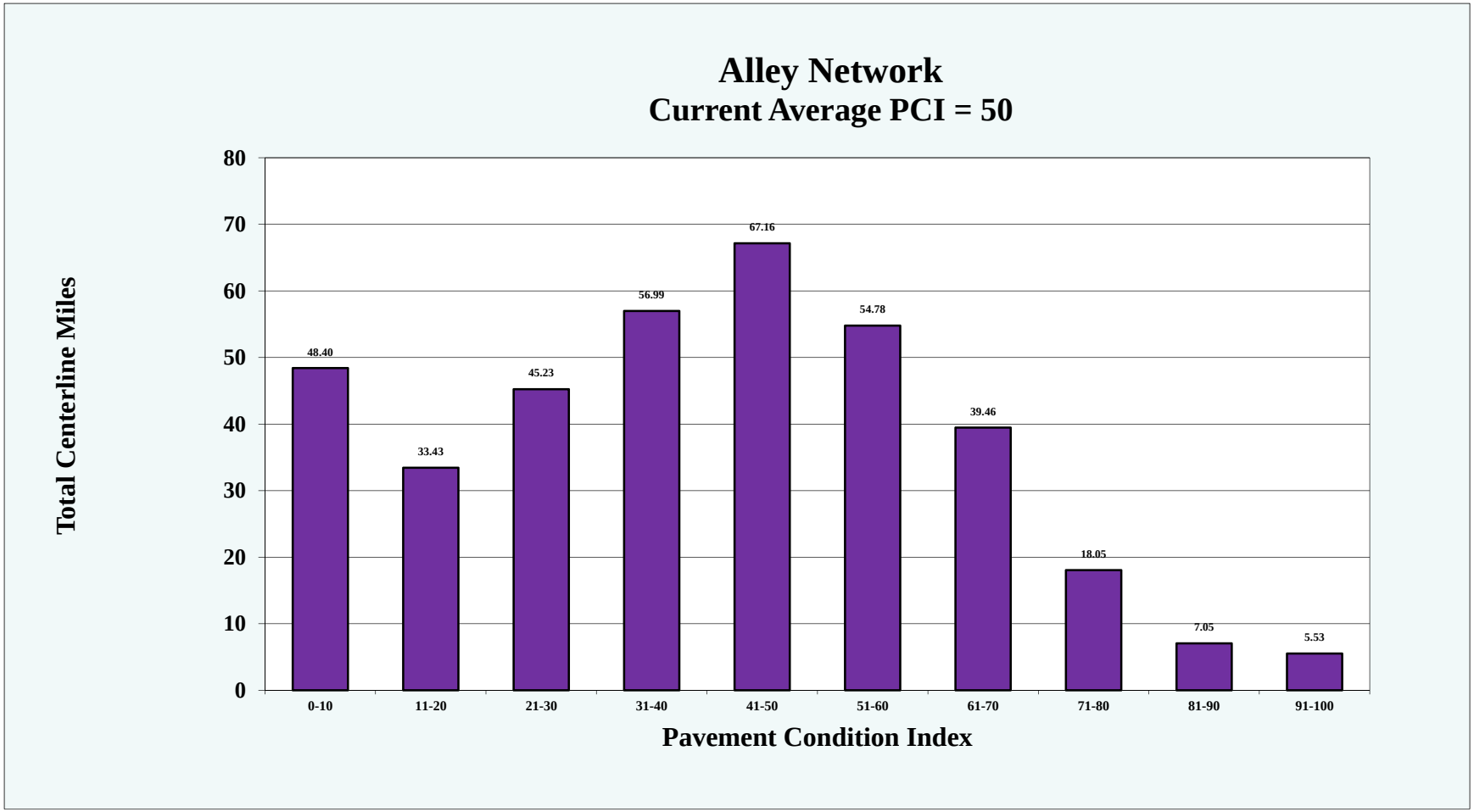

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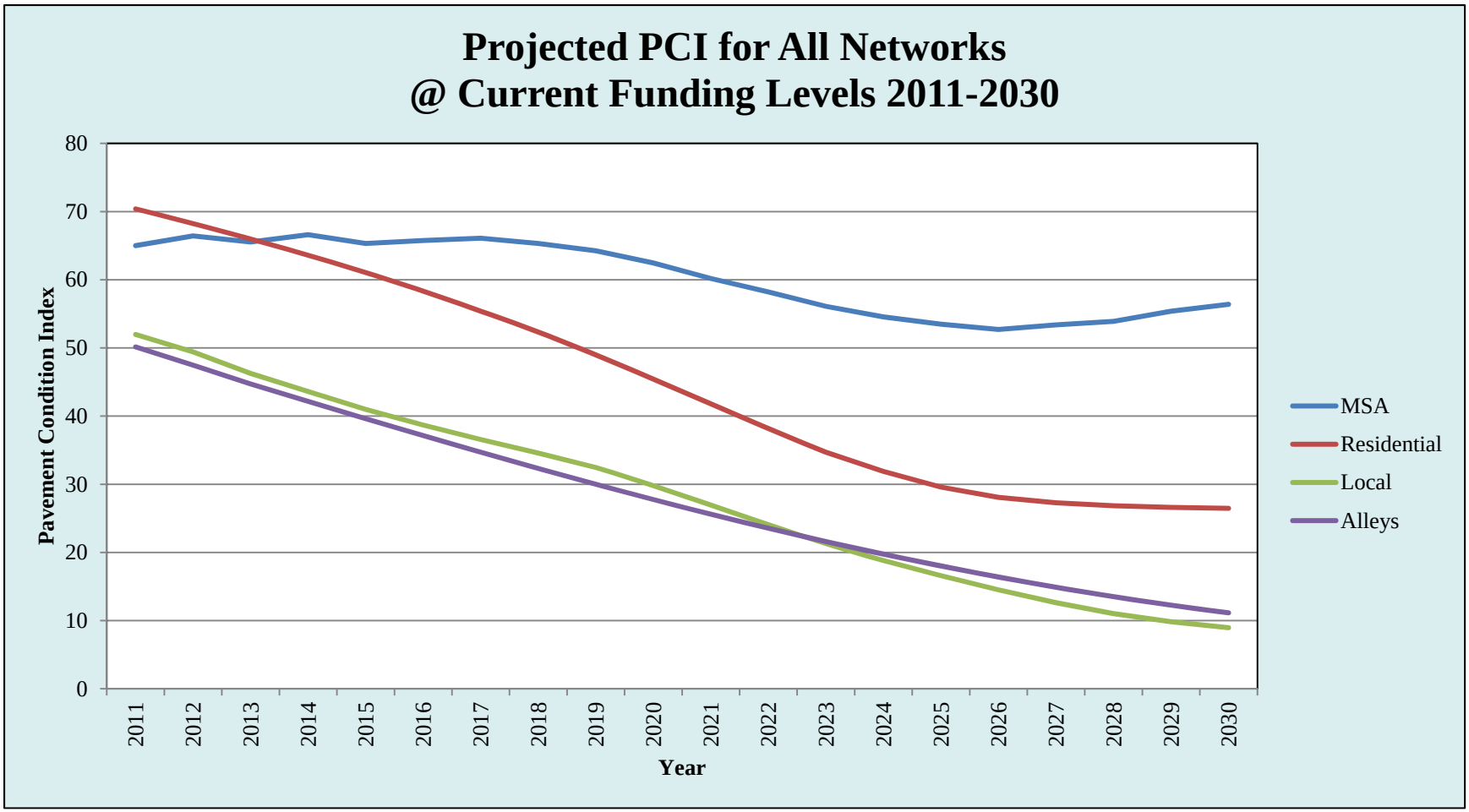

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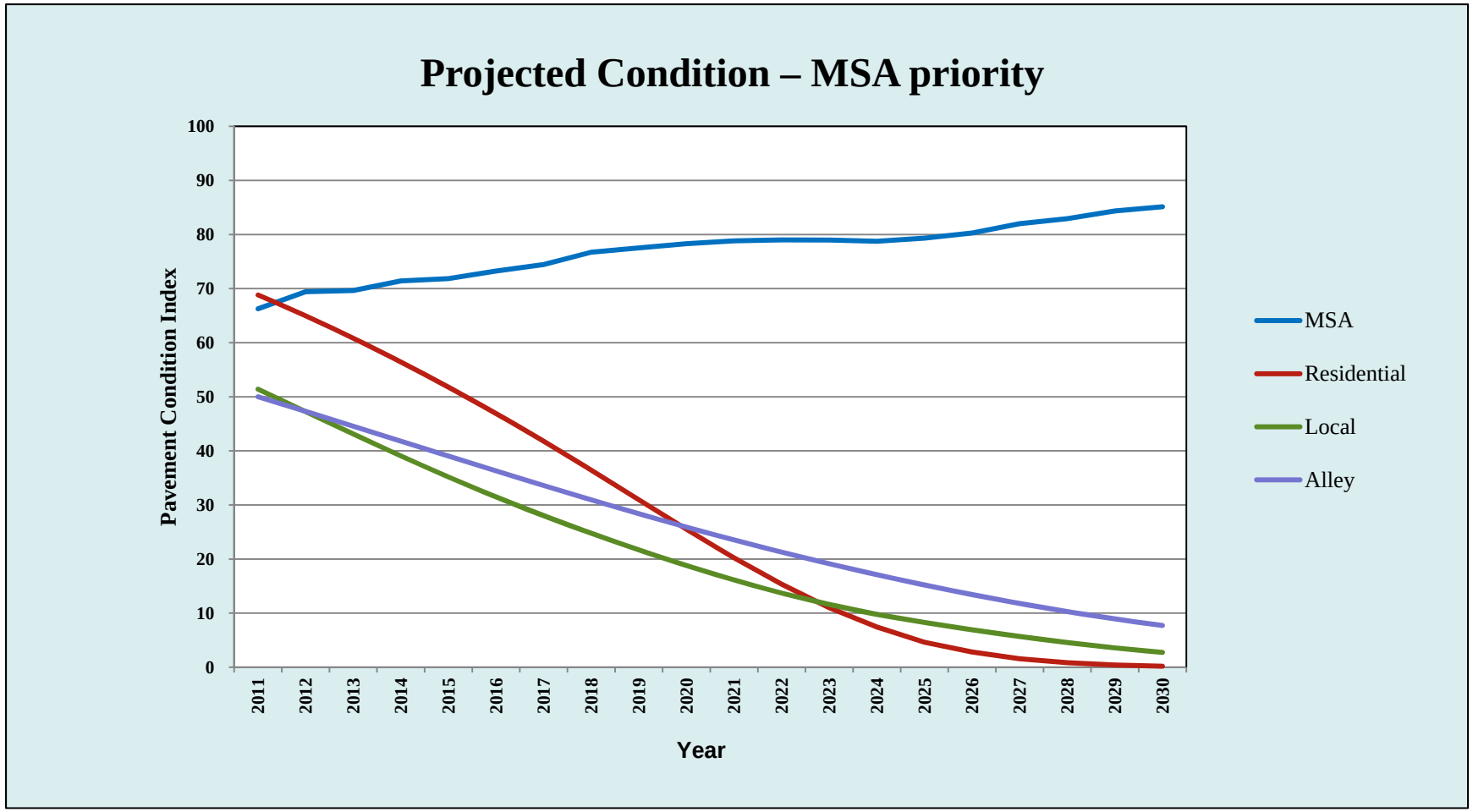

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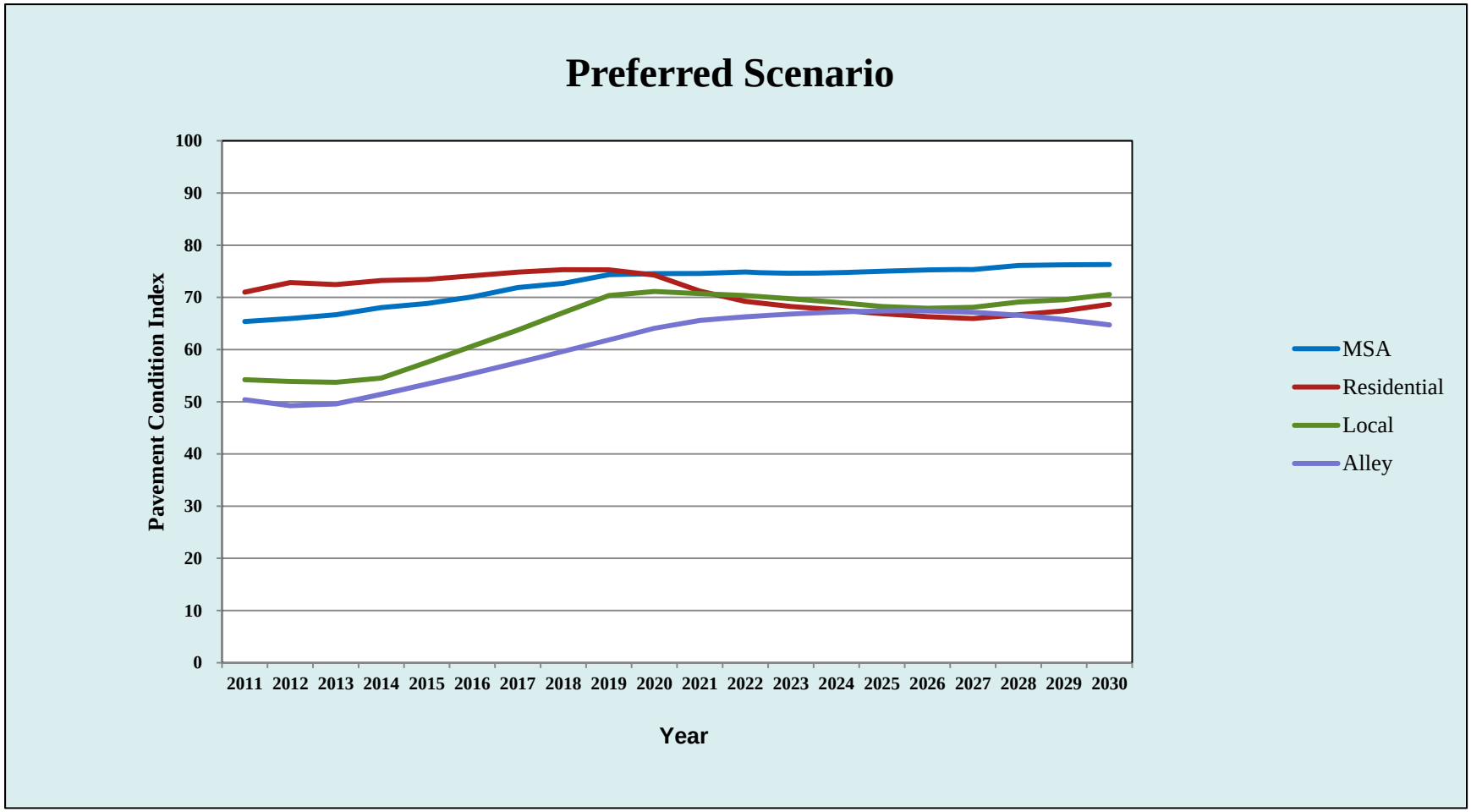

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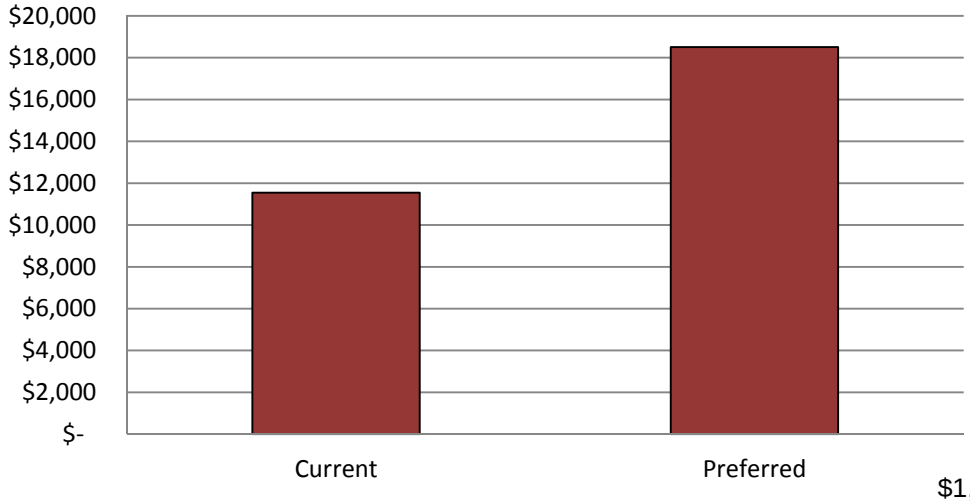
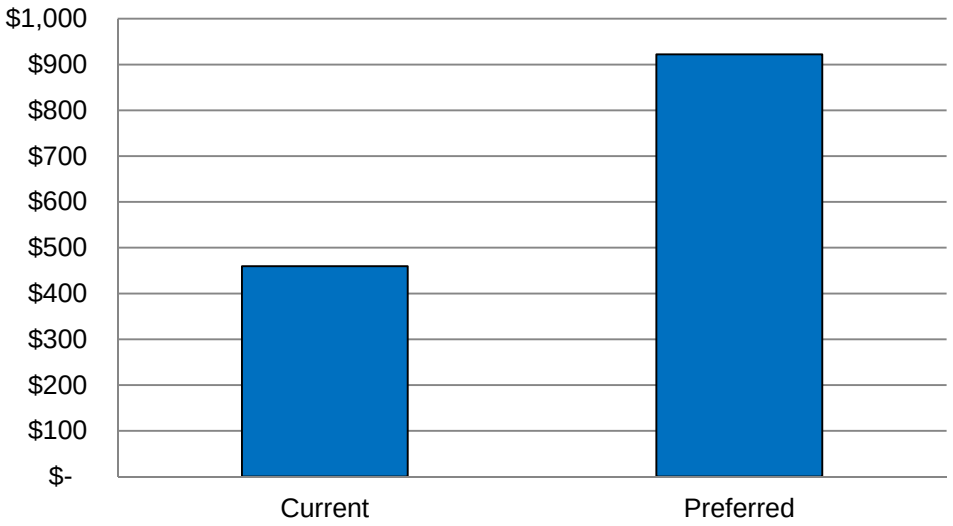
MSA Capital Investment (Avg $1k/Yr)



MSA Preventive Maintenance (Avg $1k/yr)



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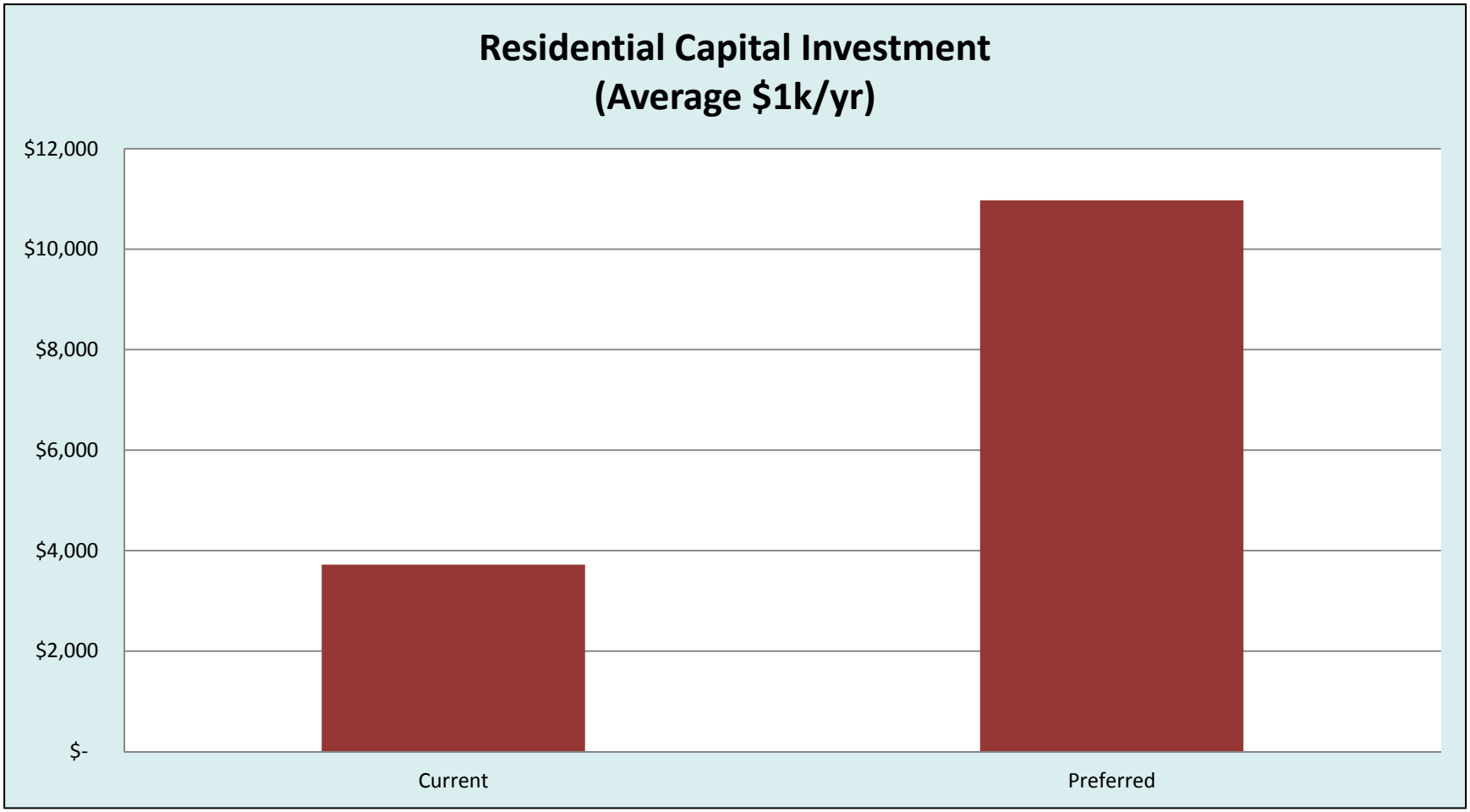

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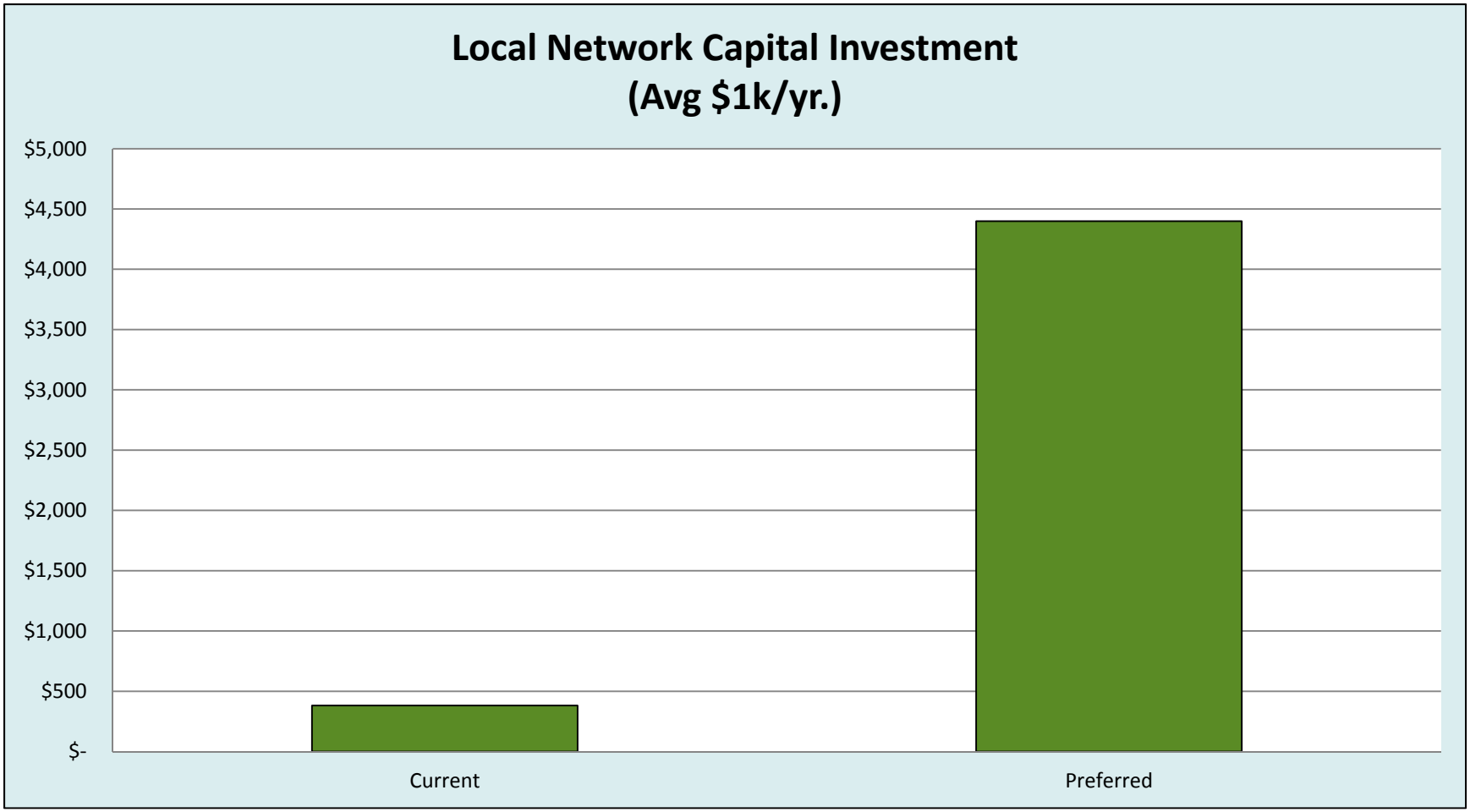

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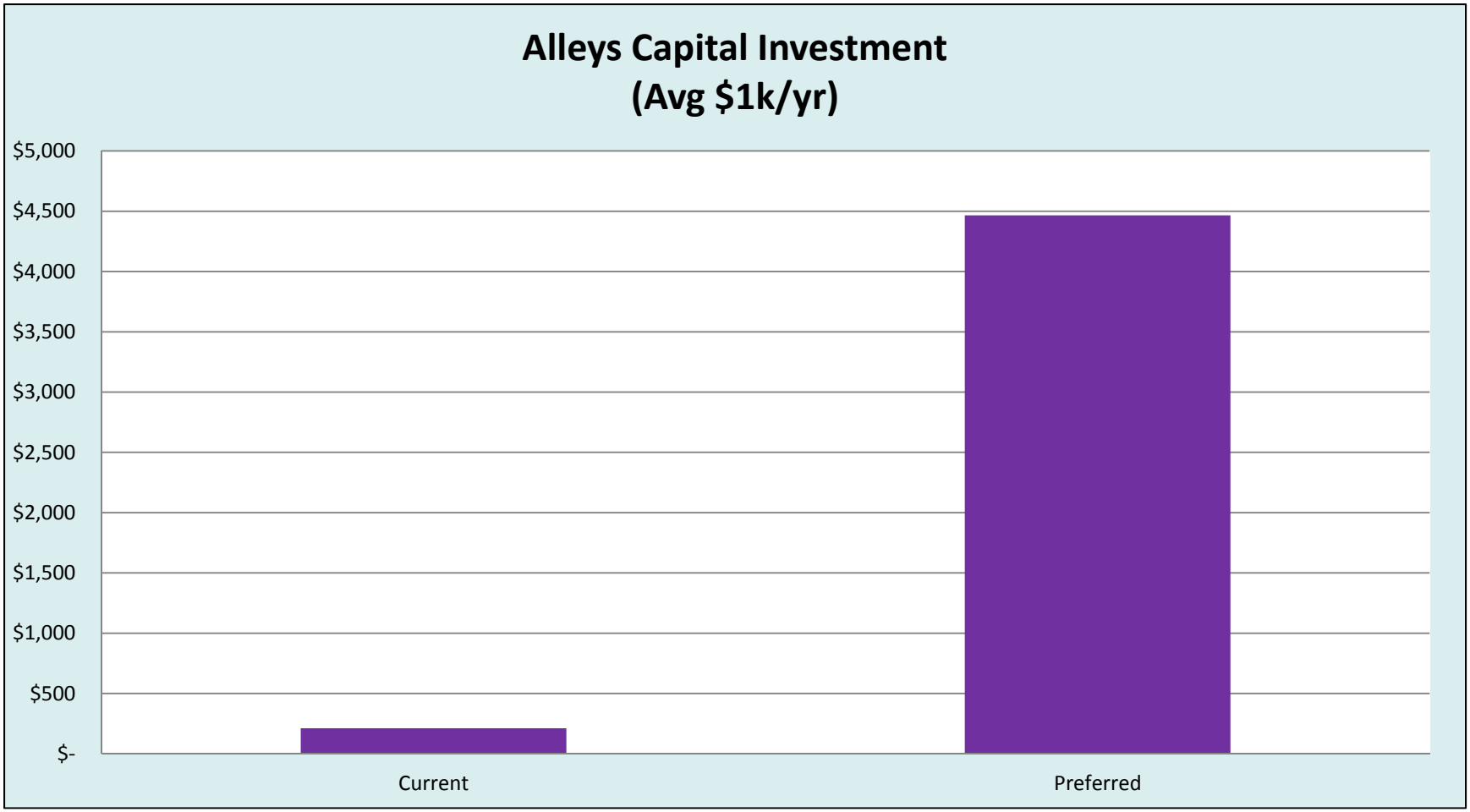

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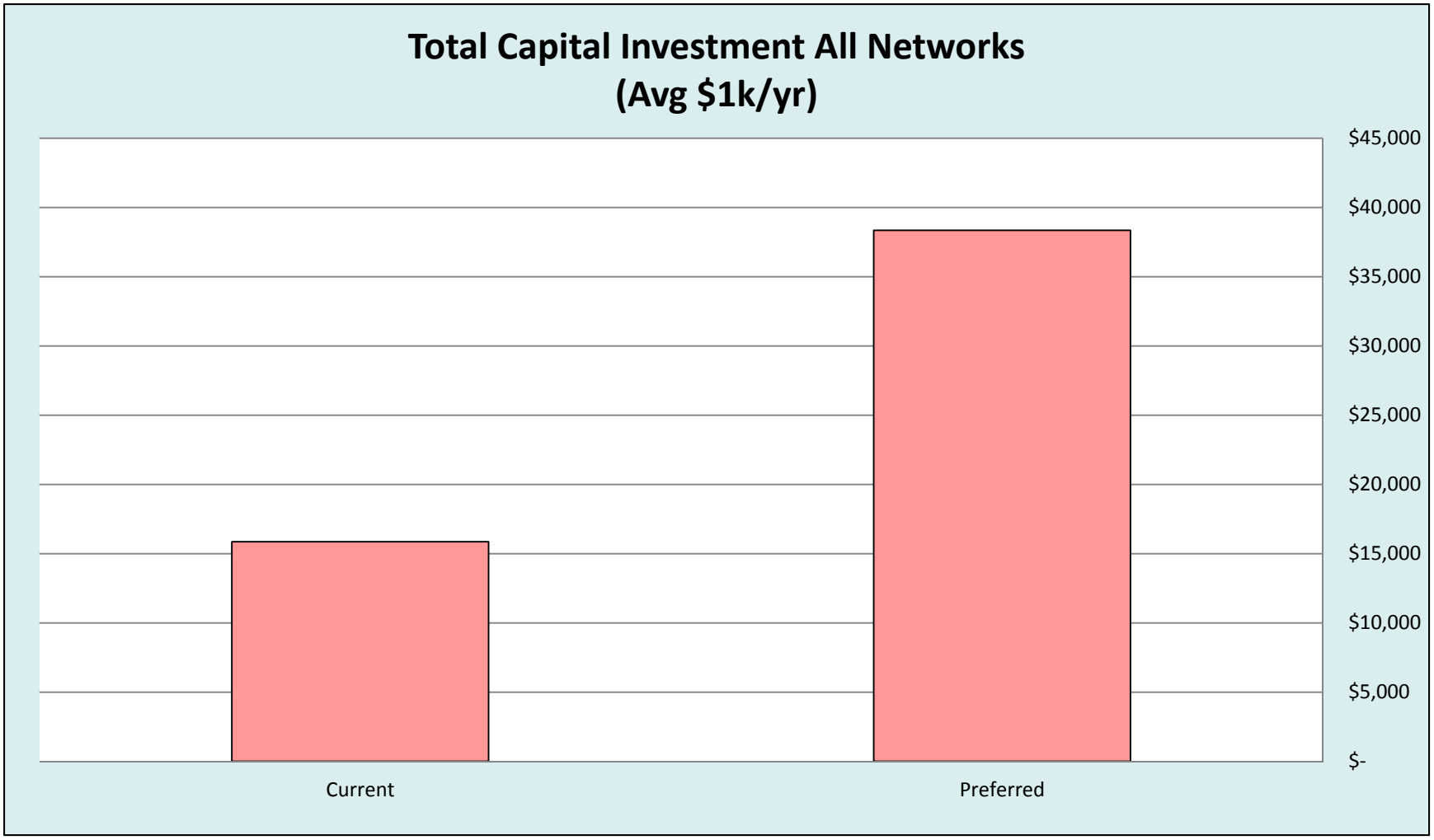

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- Bridges

Camden Bridge, left; Plymouth Avenue Bridge, above

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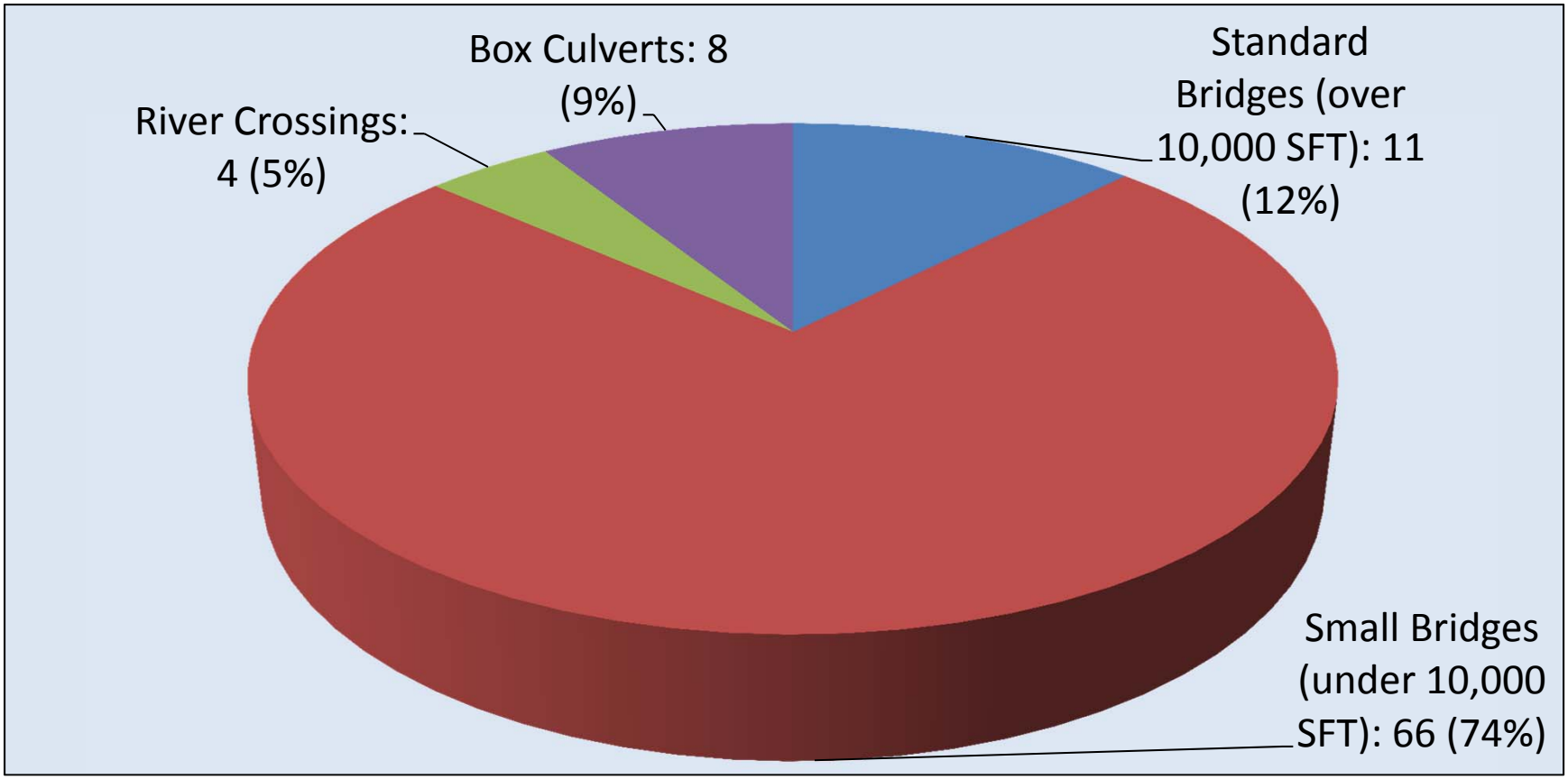
Minneapolis Bridges by Type
Total of 89



Bridge Sufficiency Rating

- A national standard defined by the Federal Highway Administration.
- A measure of the bridges sufficiency to remain in service.
- Overall Sufficiency Rating Score (0-100 scale)
  - Adequate Condition
  - Structurally Deficient
  - Functionally Obsolete

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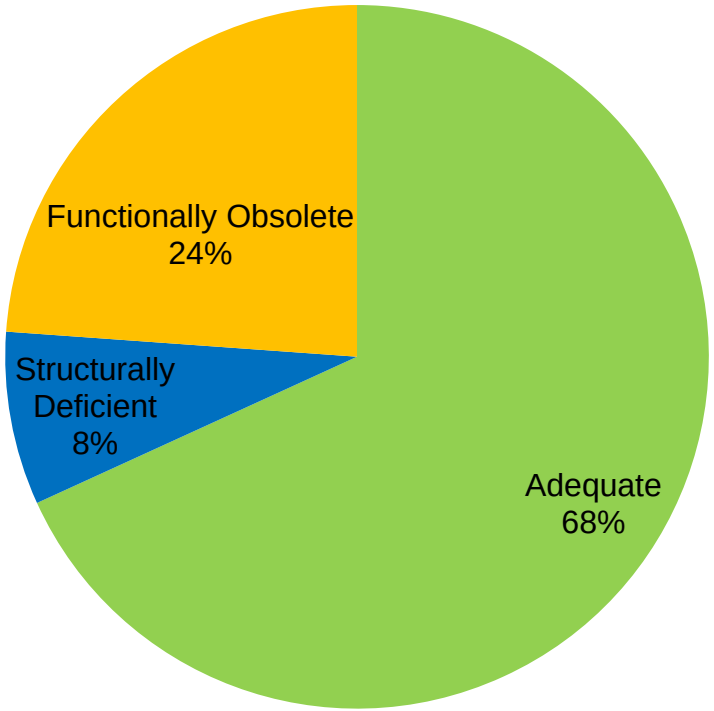
Bridge Sufficiency Rating



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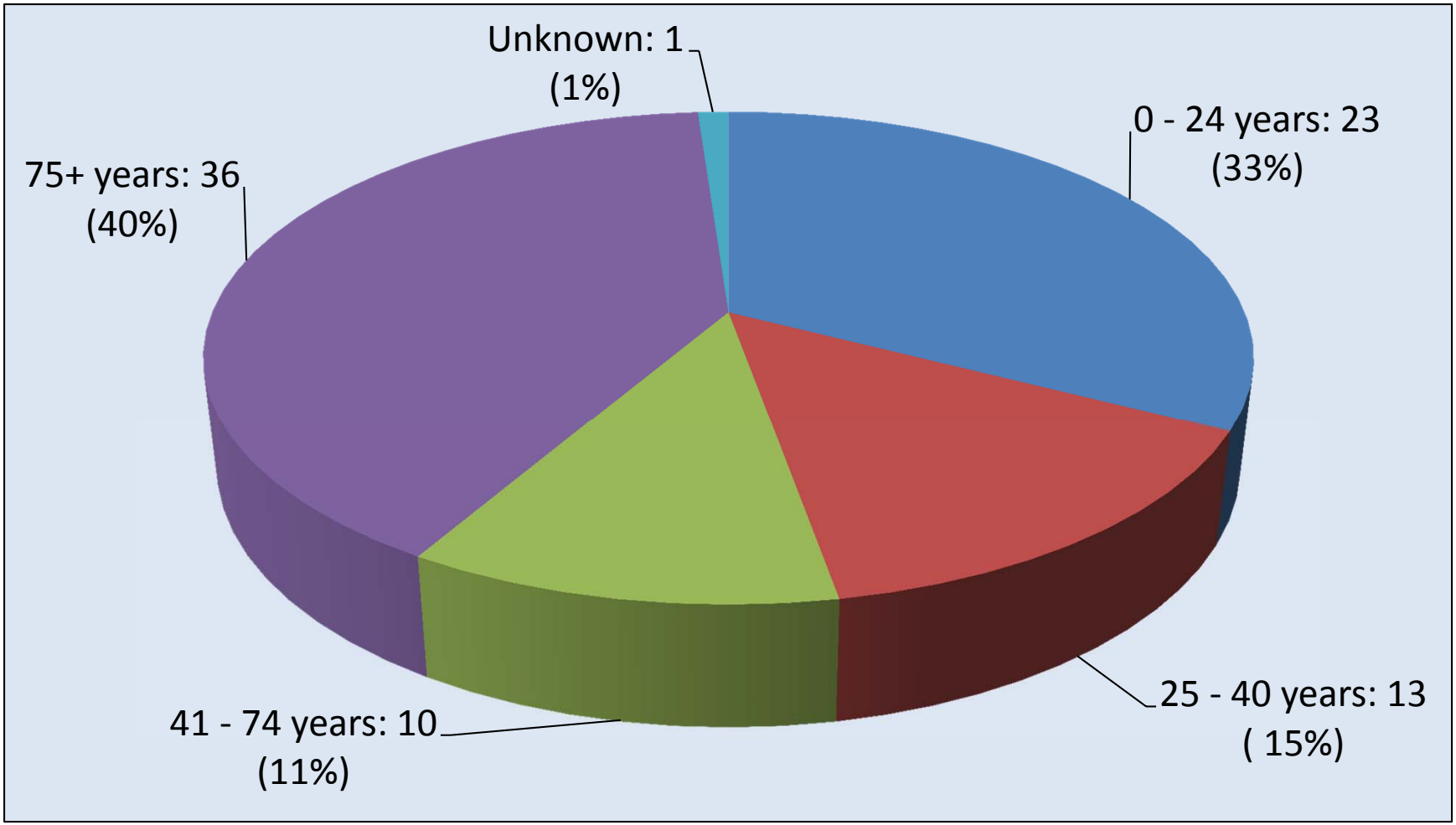
Bridge Age



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Bridge Service Life Standards:

- 75 year service life
- Preventive maintenance following recommended industry standards for each structure.

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- 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.

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Ideal Bridge Funding (89 city vehicular bridges)

Replacement and Rehabilitation (capital program)

- $3.1M/yr average needed
- Averaged $2.9M/yr in 2000-2011

Maintenance funding:

- Additional $450k/yr for bridge maintenance needed

Other Bridge Needs:

- Midtown Greenway Bridges
- Railroad bridges
- “Betterments” for State and County bridges

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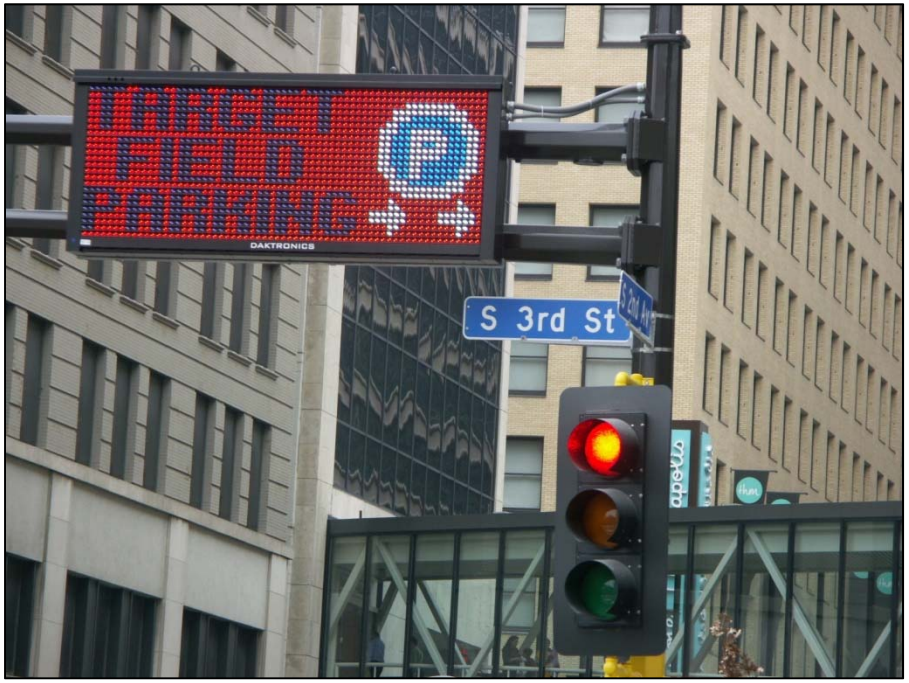
Existing Inventory & Current Conditions

Traffic Signals



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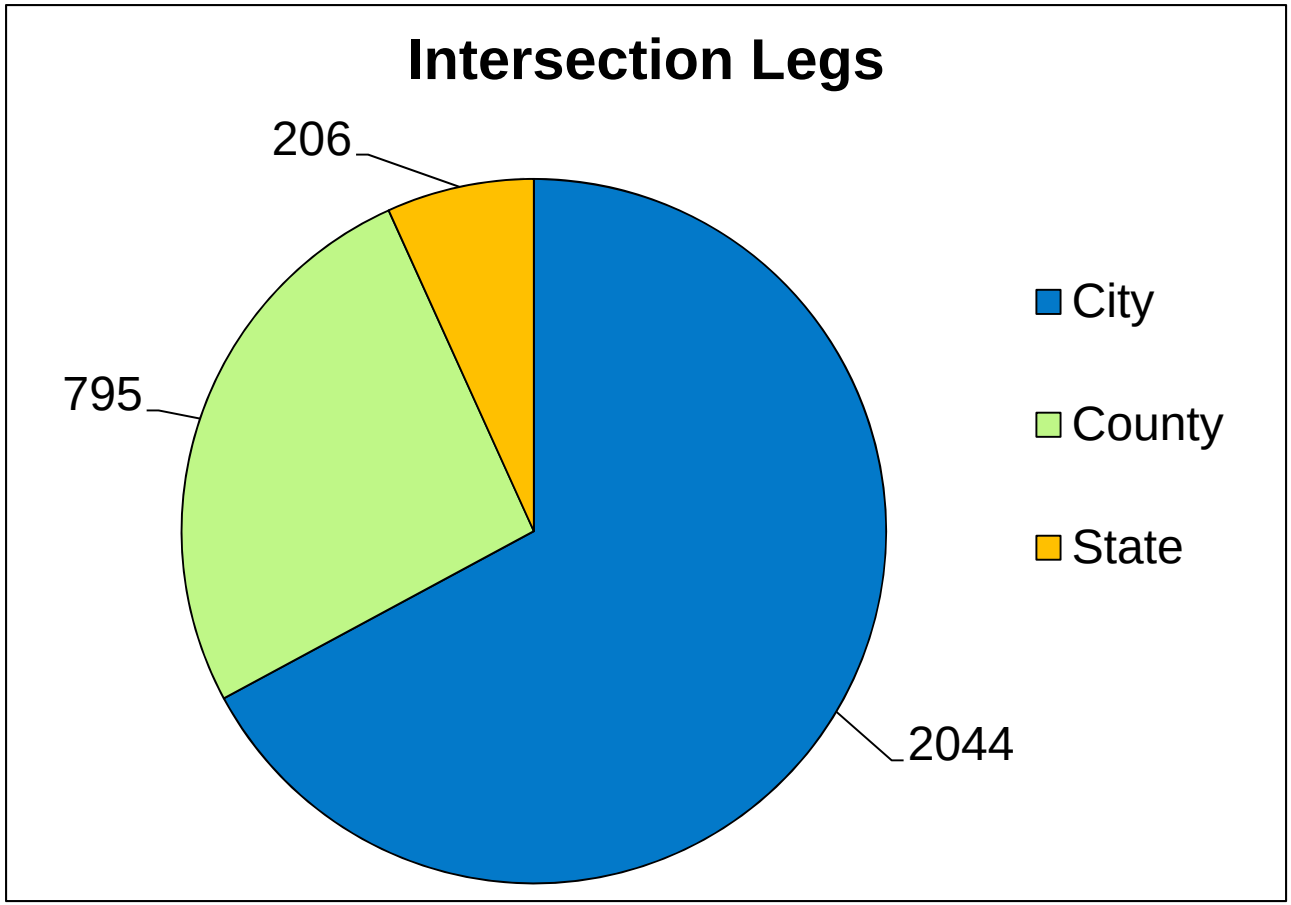
- 793 signalized intersections.
- Costs generally shared based on intersection legs.



Condition of signals

- Signal poles and underground wiring:
  - Most exceed the 30 year service life.
- Signal controllers/cabinets:
  - 340 of the 793 intersection exceed15 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)

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- 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.

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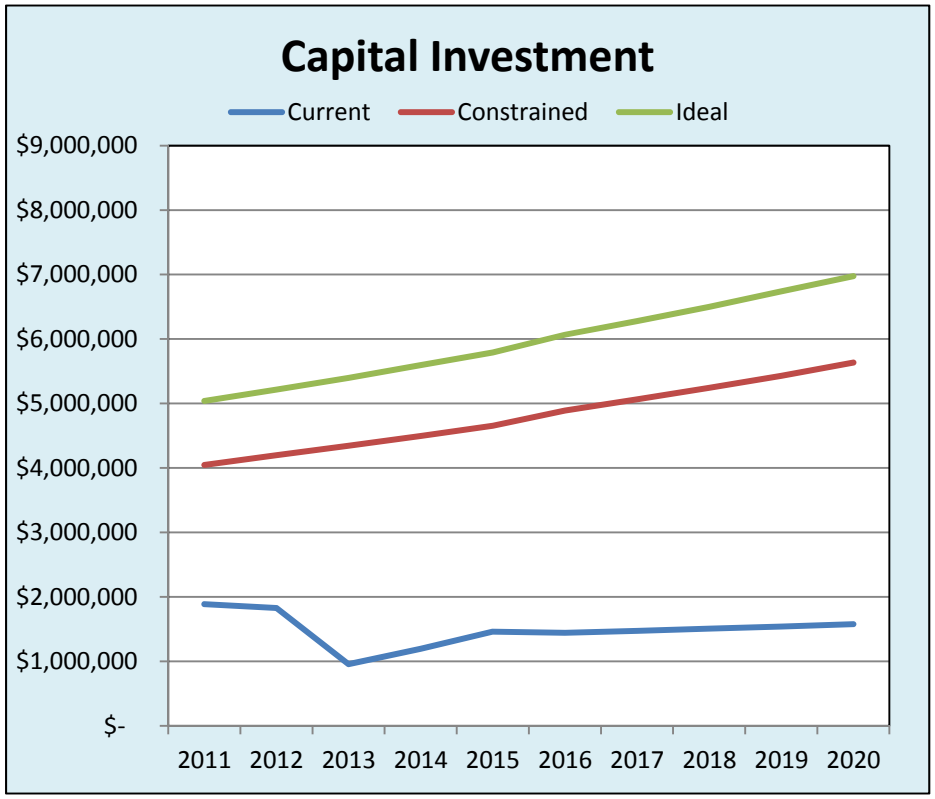
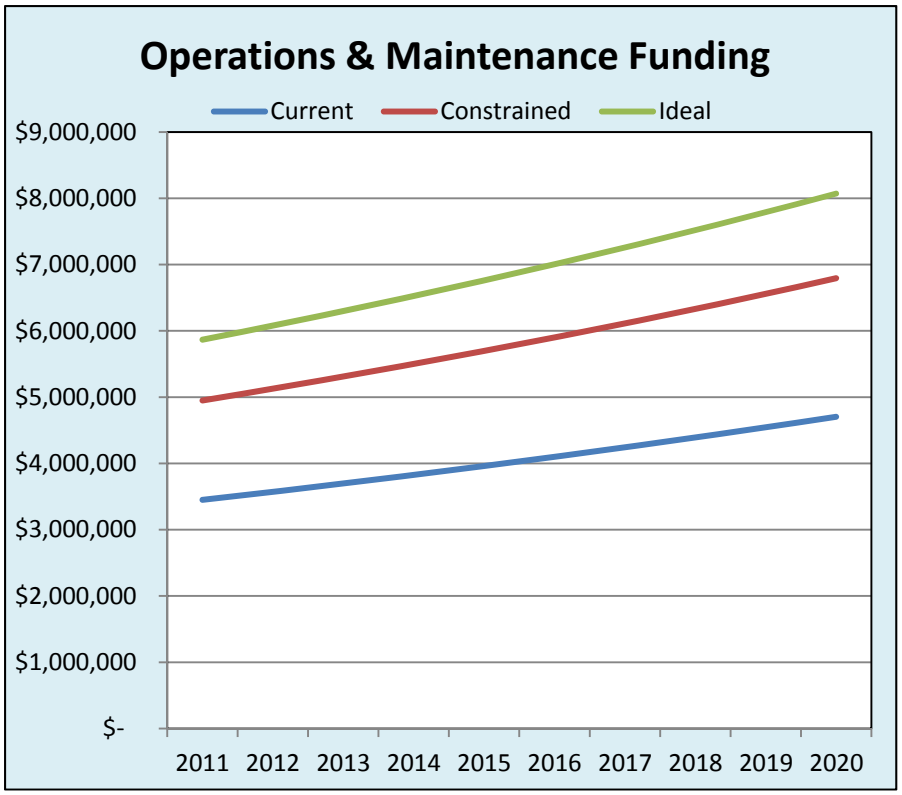
Traffic Signal Funding Levels





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- Impact of underfunding:
  - Inefficiency of traffic flow
    - Traffic diversion to side streets and neighborhoods
    - Negative economic impact
    - Increased fuel usage
  - Aesthetic concerns (rusty poles).

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Existing Inventory & Current Conditions

Streetlights

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- 41,000 streetlights in City
  - 25,000 Xcel wood pole lights (cost excluded from analysis)
  - 14,200 city owned streetlights
  - 1,900 parkway streetlights

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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)

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- 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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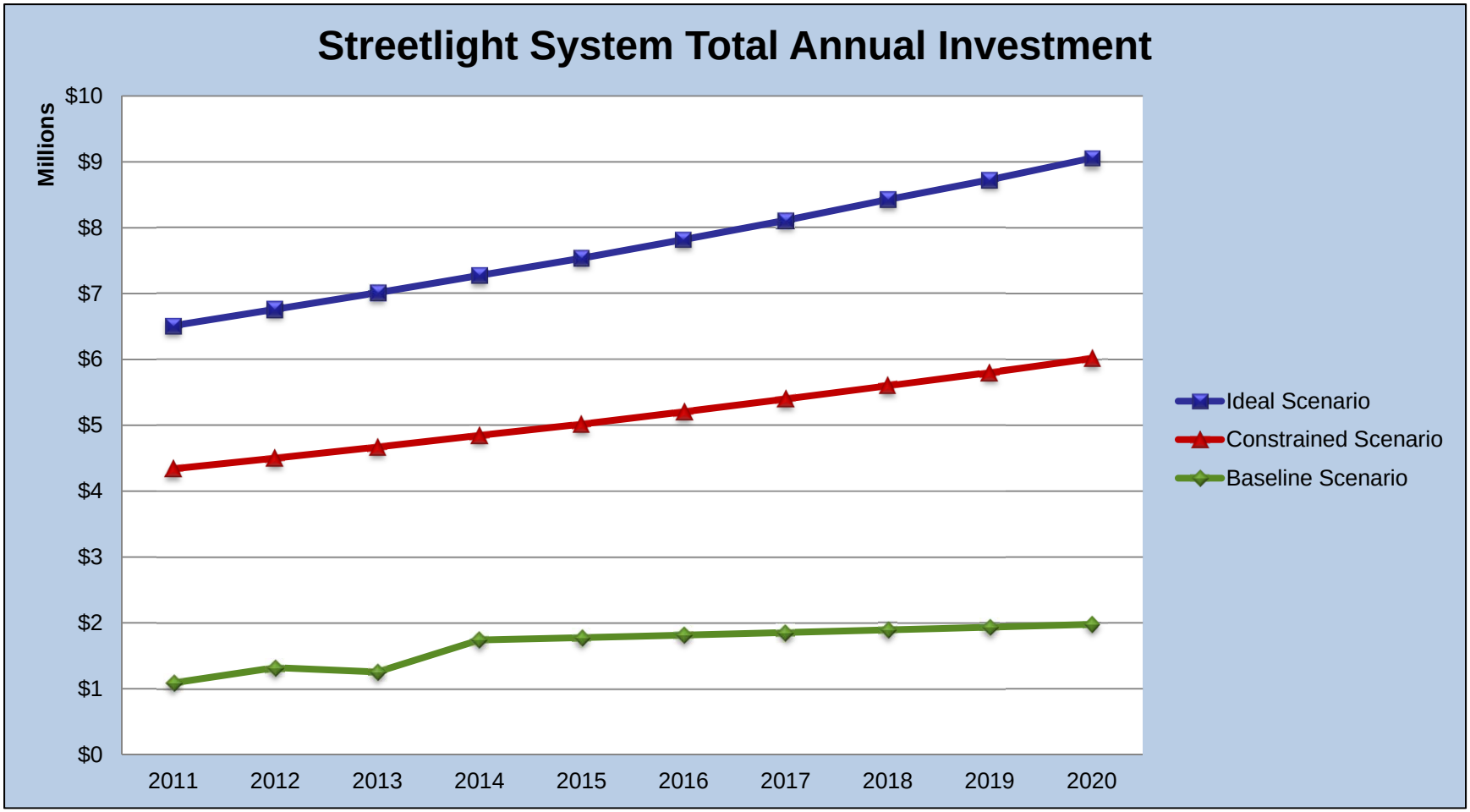

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- Impact of underfunding
  - Reduced pedestrian and bicycle safety
  - Livability (perceived safety, comfort level while walking biking)
  - Aesthetic concerns (rusty poles, caution tape, broken light bases, etc.)

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Peer Cities Review Summary

Seattle

Denver

St. Paul

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Peer Cities Review Summary

(Seattle, Denver and St. Paul)

Pavement Findings

- All cities utilize some type of Pavement Management System or asset management system.
- 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 expenditure (capital and maintenance).
- The bridge sufficiency rating is generally used by all cities to evaluate bridge needs.
- Seattle has discontinued the use of deck flushing due to environmental concerns.
- Only 1 of the 4 cities (including Mpls) have a formal policy on bridge maintenance activities.
- 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.

Funding alternatives already being utilized by Minneapolis

- State and Federal programs (STP, SAM/TED, HSIP, etc)
- Special Congressional stimulus funding (ARRA, TIGER, etc)
- State or local Bonding
- Cooperative Agreements – State or County
- Municipal State Aid funds
- Special Assessments
- Special Service Districts
- Franchise Fees
- Property Tax Levy

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Funding Alternatives from other cities

Currently authorized in Minnesota

- The use of a special property tax levy called Bridge the Gap (BTG) to help finance infrastructure improvements. (Seattle). This may actually require legislative approval due to levy limits
- Street light utility (was considered and rejected by the City)

May require additional legislation

- The use of a special property tax levy called Bridge the Gap (BTG) to help finance infrastructure improvements. (Seattle)
- 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)

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Big Picture Conclusions:

- Inadequate investment in infrastructure.
- No easy paths to increased investment, but there are options.
- Thoughtful prioritization is critically important.

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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.

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- A BIG Thank You to the team:

Steve Kotke, Don Elwood, Mike Kennedy, Jon Wertjes, Sue Hartman, Jack Yuzna, Joe Casey, Larry Veek, Greg Schroeder, Steve Collin, Larry Matsumoto, Dennis Thoreson, Steve Mosing, Dallas Hildebrand, Jen Jordan, Finance Department, & SRF Consulting Group, Inc.