MnDOT Asset Management Strategic Implementation Plan

Agency-Wide Practice Survey Results

PREPARED FOR:

Minnesota Department of Transportation

PREPARED BY

Applied Pavement Technology, Inc.
115 West Main Street, Suite 400
Urbana, Illinois 61801
(217) 398-3977
www.appliedpavement.com

In collaboration with:
Spy Pond Partners, LLC
1165D Massachusetts Ave.
Arlington, MA 02476
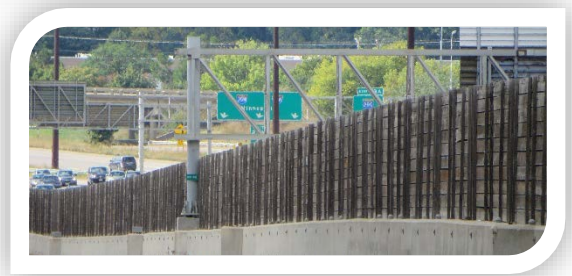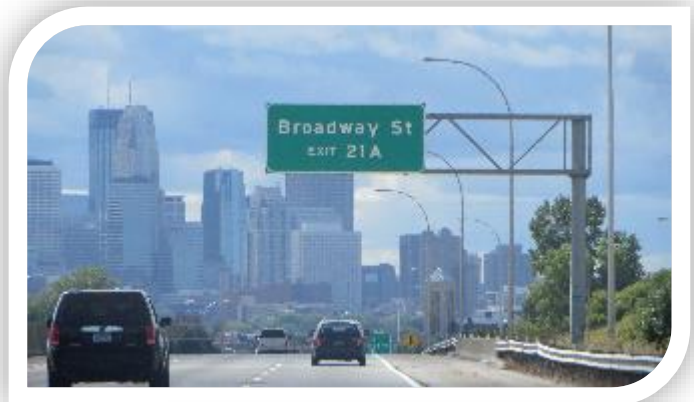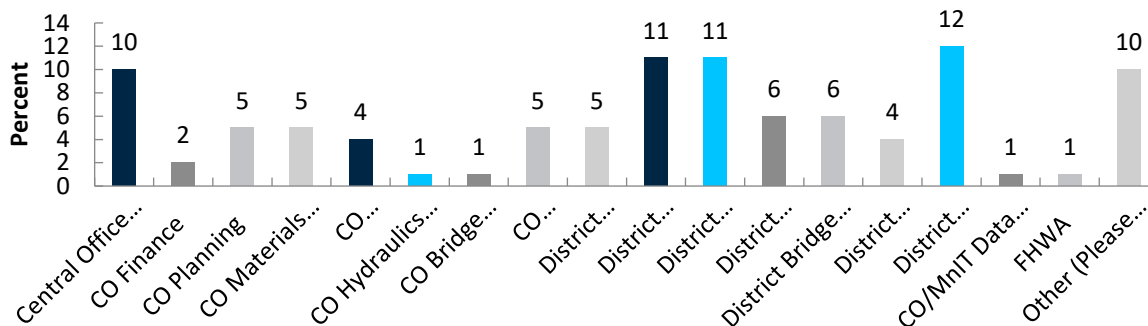(617) 395-4370

DATED:

APRIL 20, 2020

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MNDOT ASSET MANAGEMENT PRACTICE SURVEY SUMMARY

1.0 Introductory Material

1.1 Agency Role

1.1.1. Select the option that best describes your primary role or responsibility at MnDOT:

Role	Current	
	Percent	Count
Central Office (CO) Asset Management	10%	10
CO Finance	2%	2
CO Planning	5%	5
CO Materials Engineering/Management	5%	5
CO Maintenance	4%	4
CO Hydraulics Engineering	1%	1
CO Bridge Engineering/Management	1%	1
CO Traffic/Safety/Signs	5%	5
District Maintenance Supervisory	5%	5
District Program Management/Planning	11%	11
District Traffic/Safety/Signs	11%	11
District Material Engineering	6%	7
District Bridge Engineering/Operations Management	6%	7
District Hydraulics/Water Resources Engineering	4%	4
District Maintenance/Operations Management	12%	13
CO/MnIT Data Governance	1%	1
FHWA	1%	1
Other (Please Specify)	10%	10
Totals	100%	103

Other (specified)	Count
District Management	2
District Planning	2
DOT Leadership	1
Department Management	1
District Engineer	2
District Mgt	1
MNIT at DOT Project Manager	1
Totals	10

1.2 Key Asset Identification

1.2.1. The survey includes statements that reference critical assets at MnDOT. In addition to the assets that are included in the Asset Management Plan [i.e., pavements, bridges, centerline culverts, overhead sign structures, high-mast light towers, deep stormwater tunnels, noise walls, signals and lighting, pedestrian infrastructure, buildings and Intelligent Transportation Systems (ITS)], which of the following do you consider to be CRITICAL transportation assets? (You may pick multiple responses)
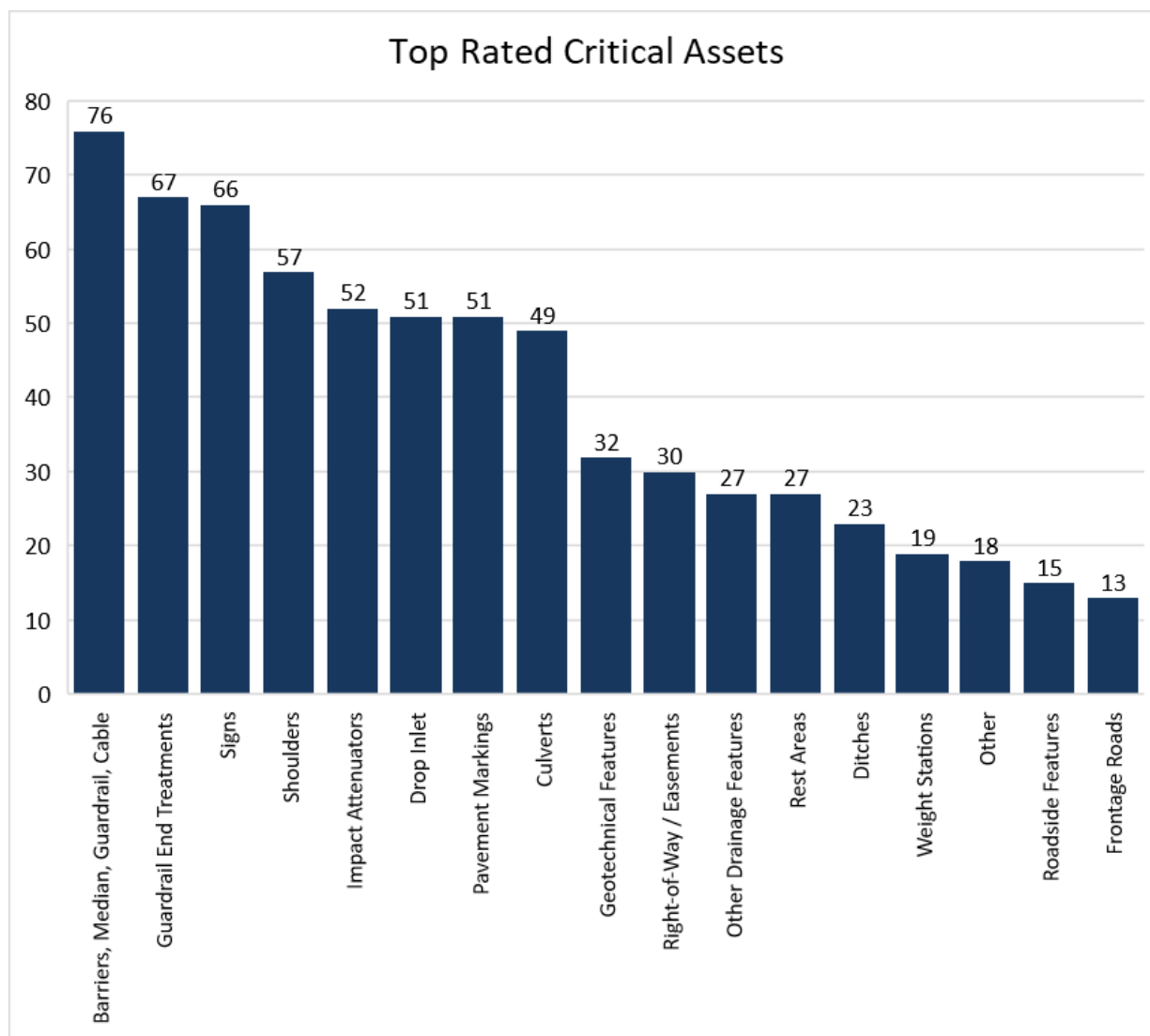
Others identified:
- "Some" ditches. critical, flood prone etc.
- ADA facilities, ie ped ramps
- Bridge Approach Panels
- Bus-only shoulders in particular

- Centerline and Shoulder Rumble Strips
- COMMENT: You didn't define Critical. I dont know if these are all Critical, but it beats having 2 or 3 systems for Critical, Imperative, & Important.
- Construction and maintenance agreements
- Data
- For culverts - the MnDOT culverts under public roads at intersections, should be a priority, and for other drainage assets, the ponds, infiltration basins and other water treatment devices should be a high priority for a key asset
- If state and or Federal Asset
- Pavement condition
- Ramps
- Retaining Walls
- Signals
- Signals, TMS
- Traffic signals
- Traffic Signals, Lighting, ITS
- Tunnels

2.0 Agency Goals and Objectives
Gap Analysis For All of Section 2.0, Agency Goals and Objectives

None of the areas within this section have a gap greater than 1.0, indicating fairly close alignment between current and desired practices.
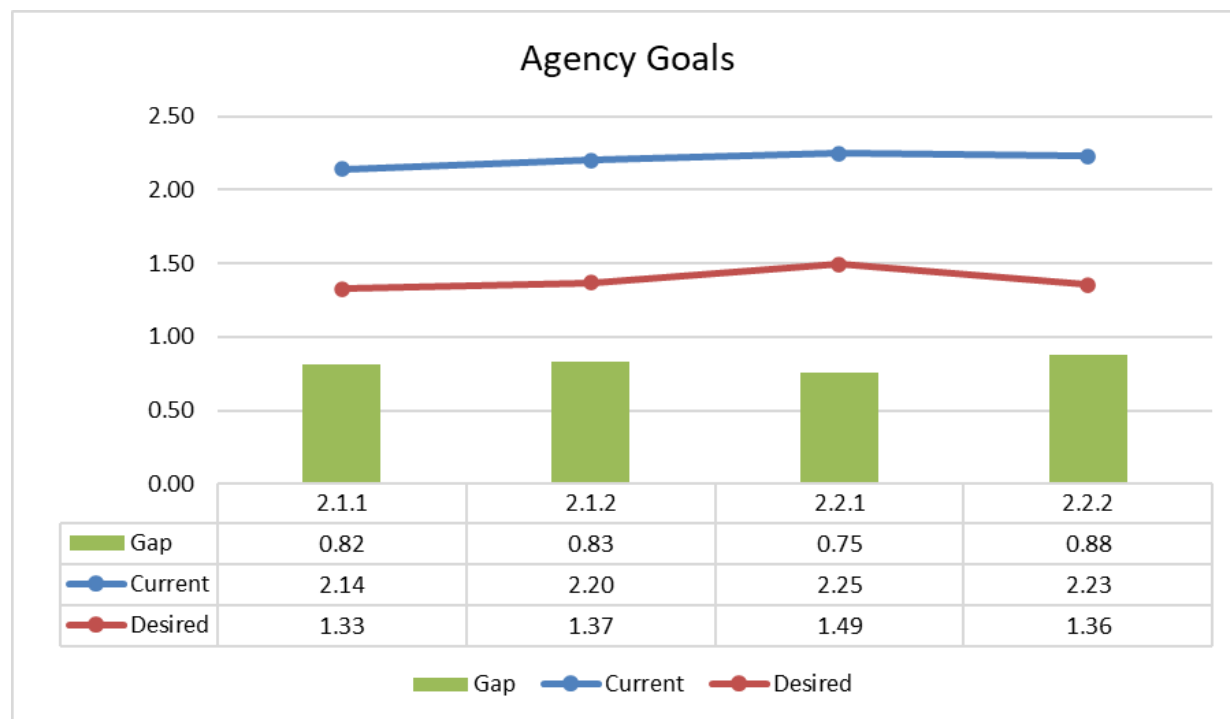
For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Agency Goals and Objectives group, including:

- 2.1 Goals and Objectives (2 statements).
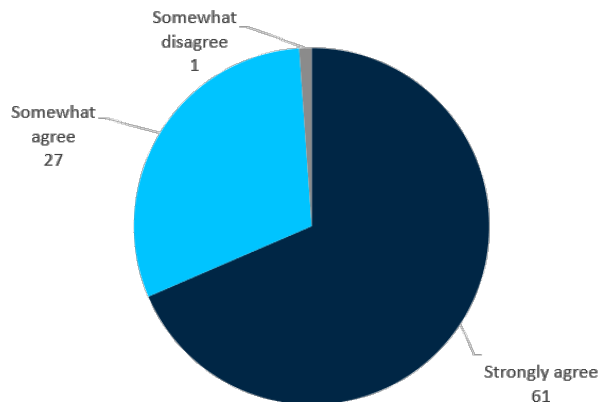- 2.2 Asset Management Influence (2 statements).

2.1 Goals and Objectives

2.1.1. MnDOT's goals and objectives are comprehensive (e.g., include asset management), integrated with other statewide objectives, and supported by quantitative and measurable performance measures or criteria.

2.1.1. Current   2.1.1. Desired
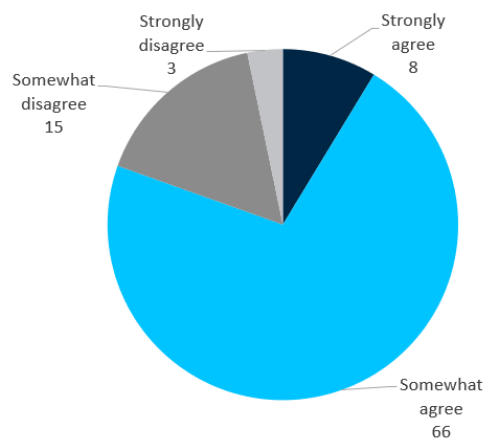
| | **Current** | | **Desired** | |
Value	Percent	Count	Percent	Count
Strongly agree	8%	8	64%	61
Somewhat agree	66%	66	29%	27
Somewhat disagree	15%	15	1%	1
Strongly disagree	3%	3	-	-
Not my area of expertise	8%	8	6%	6
Totals	-	100	-	95

Current:
- For assets that are already included, there seems to be a good program in place, for other assets (say retaining walls, the program appears uncoordinated or absent.
- For example, Asset Management's goal appears to be to populate the shiny new database. One of the biggest problems we have is poor quality of installed infrastructure. There are no as-built provisions or efforts at quality control. There is not much for ability to actually managing the asset.
- I honestly don't feel like I have a good handle on asset management at all. I wish there was more direction for the Districts (who is responsible for gathering asset condition data, who will maintain the data, etc.).
- In some asset classes, there are quantitative performance criteria (i.e. centerline culverts, bridges, pavements). Some other assets are lacking.
- MnDOT's goals and objectives need to explicitly state that they include asset management.
- Not all of our objectives are yet supported by data or measures. Still in development for some.

- Not balanced, and should not be uniform statewide.
- Quantitative measures don't adequately support decision making. and if they are capable of that, we don't do it.

Desired:

- I am not sure what desired means, desired by me or something else?
- I think the goal is to tie this together but the devil is in the details and the implementation has not been as good as hoped.
- If I understand this correctly, it seems that asset management is desired, although I am not sure it is properly funded or that the asset owners and responsible parties are clear.
- We do well, but could advance to a more rigorous treatment of roadside assets and investment tracking and tradeoffs.

2.1.2. MnDOT's strategic, long-term goals and objectives are aligned with asset management practices.

2.1.2. Current
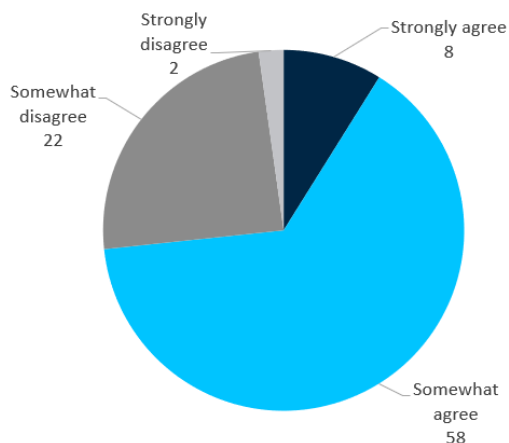
2.1.2. Desired
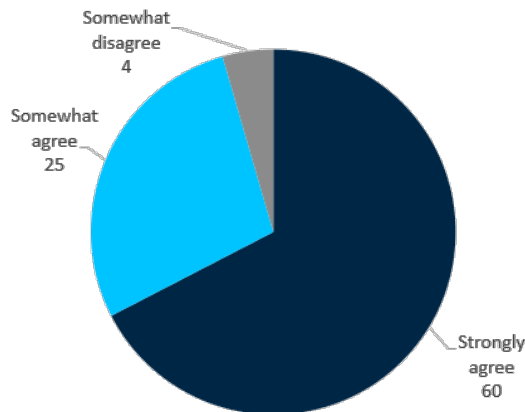
| | Current | | Desired | |
Value	Percent	Count	Percent	Count
Strongly agree	8%	8	63%	60
Somewhat agree	59%	58	26%	25
Somewhat disagree	23%	22	4%	4
Strongly disagree	2%	2	-	-
Not my area of expertise	8%	8	7%	6
Totals	-	98	-	95

Current:
- On paper we speak about aligning with asset management practices, but our programming actions and decision-making often speak to the contrary. Much of this is due to competing objectives.
- While the goals are aligned, I am not sure current practice, plans, funding, or leadership is configured to produce the goals.

Desired:
- I am not sure what desired means, desired by me or something else?
- I am unfamiliar as to if the goals are aligned in terms of achieving the goals (on paper they seem to be stated in a way where I would agree).
- It is difficult for us to fully execute our goals for a number of reasons such as competing customer demands.
- Maintenance budget needs to increase with respect to the increase of assets.
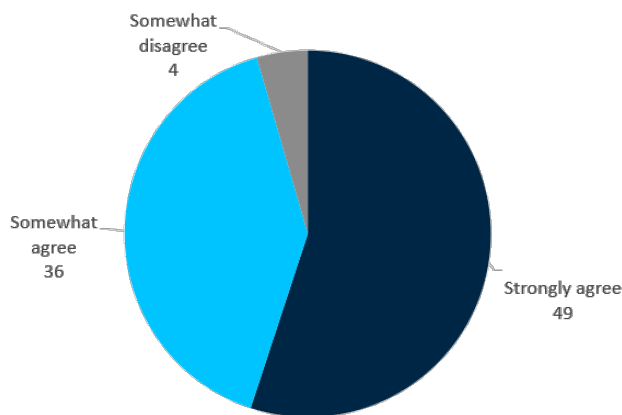
2.2 MnDOT's Asset Management Influence

2.2.1. MnDOT's practices encourage a business-oriented, customer-focused approach to asset management.

2.2.1. Current   2.2.1. Desired
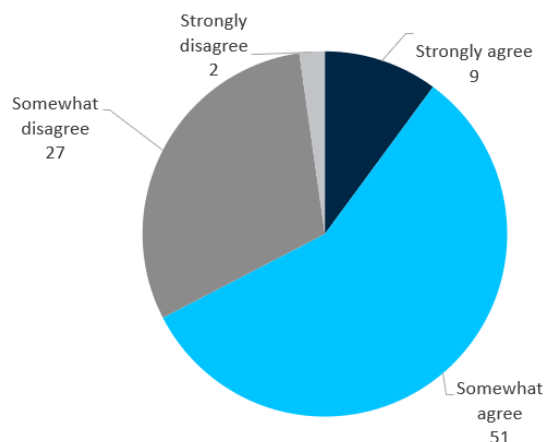
	Current		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	9%	9	52%	49
Somewhat agree	53%	51	38%	36
Somewhat disagree	28%	27	4%	4
Strongly disagree	2%	2	-	-
Not my area of expertise	8%	8	6%	6
Totals	-	97	-	95

Current:
- Don't fully get the question... aren't the customers to asset management - MnDOT itself?
- I haven't seen a large amount of personal evidence that asset management is being used for planning or business outlook. Most policy still seems very reactionary- worst first replacements for bridges etc. But admittedly it is hard to tell when not actively involved with TAMS at a high level.
- The goal is to populate the database. With the exception of work orders, very little effort went into considering how practitioners would use the information. We already had a working system and TAMS has not been an improvement.

Desired:
- I struggle with this one because stakeholder needs/requests often compete with preservation of assets on our projects. In other words, we would be able to direct more funds to the condition of assets if fewer stakeholder requests were included in projects.
- We use measures as a proxy for customer focus. Our practices are part business, part historically based. we are moving in this direction (business oriented). I think measures adequately represent what customer have little understanding of and interest in.
- I am not sure what desired means, desired by me or something else?

- It does seem that MnDOT is interests in this, but again it is hard to tell if this is an actual business practice motivation recognizing the benefits- or if it is a reaction to legislation and external influences and MnDOT is merely meeting requirements.
- Different customers have different interests so when you support one you may be going against another.

2.2.2. MnDOT's asset management program positively influences investment decisions in transportation assets.
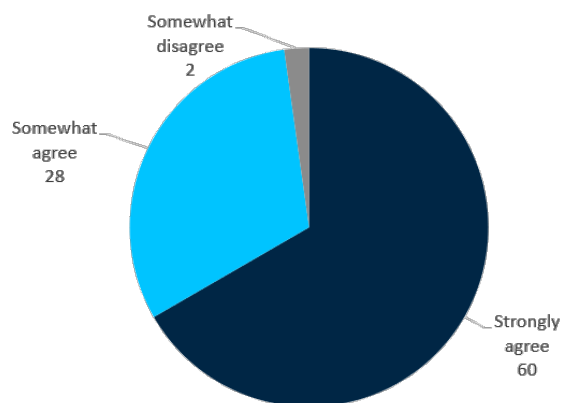
2.2.2. Current
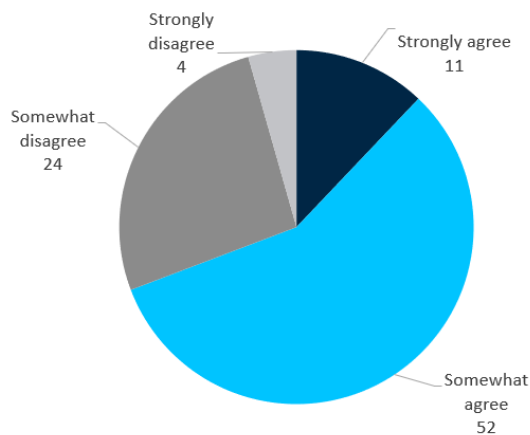
2.2.2. Desired

Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	11%	11	63%	60
Somewhat agree	53%	52	30%	28
Somewhat disagree	25%	24	2%	2
Strongly disagree	4%	4	-	-
Not my area of expertise	7%	7	5%	5
Totals	-	98	-	95

Current:

- It can and will help, I don't think we are there yet. Maybe on some assets.
- Great for pavements and bridges, weak for others.
- I think it depends on the assts. One imagines that bridges are replaced when needed due to deterioration. Pavement may be replaced depending on other factors. Unmanaged assets- like retaining walls, appear to be replaced when they are observed to be in significant distress or at a failure event.
- In some areas, life cycle costs are considered (i.e. pavement and culverts in some Districts). In other areas, it is less of a factor (i.e. Cable Median Guard Rail).
- Is this focusing on Agile Assets or asset mgmt. in general? (assumed AA).
- Personally I think we spend more time and money on creating/maintaining asset inventories than we gain from having the inventories.
- Positively yes; sufficiently ?
- Sometimes scope changes add unnecessary improvement (life cycle has not been exhausted) but because we are there we should do additional work not originally intended for the project.
- Somewhat to strongly... certain area may be making decisions using asset management (program), but it appears fragmented and not as comprehensive as it could be to make optimal decisions.

- We use the asset inventory portion (which we have had for decades in Hydinfra), but there is no ability to manage the assets and I doubt that any effort would be done correctly.
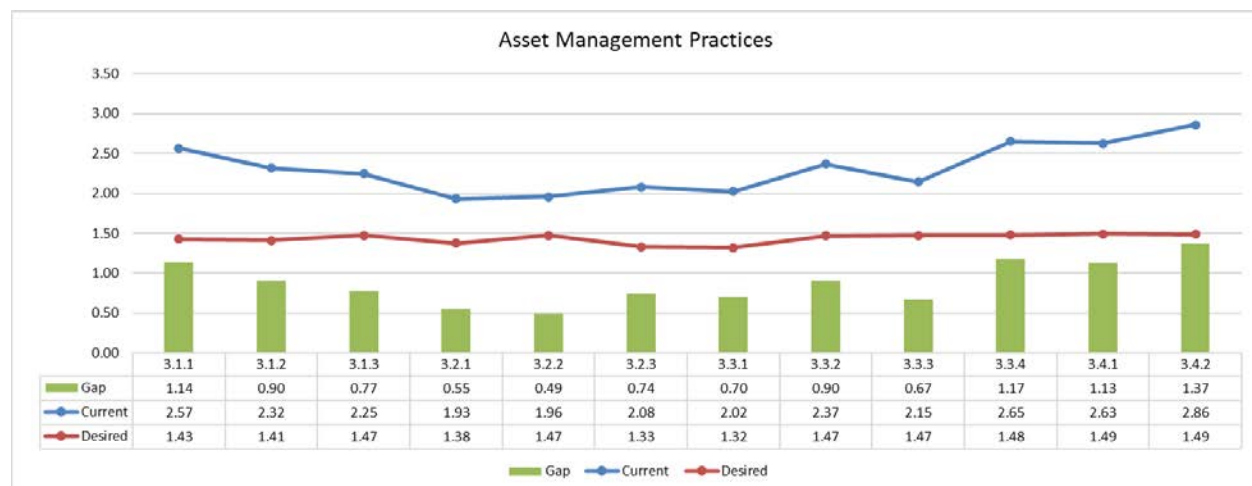- Would like to see more direct influence of the asset management program in influencing decisions.

Desired:
- I am not sure what desired means, desired by me or something else?
- It appears that this is desired.
- Its a good goal..

3.0 Asset Management Practices

Gap Analysis For All of Section 3.0, Asset Management Practices

There are four areas within this section have a gap greater than 1.0, indicating a disparity between current and desired conditions. The first item, 3.1.1, rates the degree to which asset management principles are driving asset preservation investment decisions and resource allocations. Item 3.3.4 assesses whether the Asset Management Plan and other planning documents adequately integrate both capital and operational needs into investment decisions. Both of the statements in the Life Cycle Management section reflect gaps. Item 3.4.1 informs whether long-term costs are adequately accounted in project planning and 3.4.2 explores the degree to which long-term maintenance and operational needs are evaluated as capital planning. MnDOT appears to be doing very well in terms of Leadership Support (area 3.2) and most areas of Asset Management Planning (area 3.3).

Asset Management Practices

|	3.1.1	3.1.2	3.1.3	3.2.1	3.2.2	3.2.3	3.3.1	3.3.2	3.3.3	3.3.4	3.4.1	3.4.2
Gap	1.14	0.90	0.77	0.55	0.49	0.74	0.70	0.90	0.67	1.17	1.13	1.37
Current	2.57	2.32	2.25	1.93	1.96	2.08	2.02	2.37	2.15	2.65	2.63	2.86
Desired	1.43	1.41	1.47	1.38	1.47	1.33	1.32	1.47	1.47	1.48	1.49	1.49

For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Asset Management Practices group, including:

- 3.1 Asset Management Approach (3 statements).
- 3.2 Leadership Support (3 statements).
- 3.3 Asset Management Plan (4 statements).
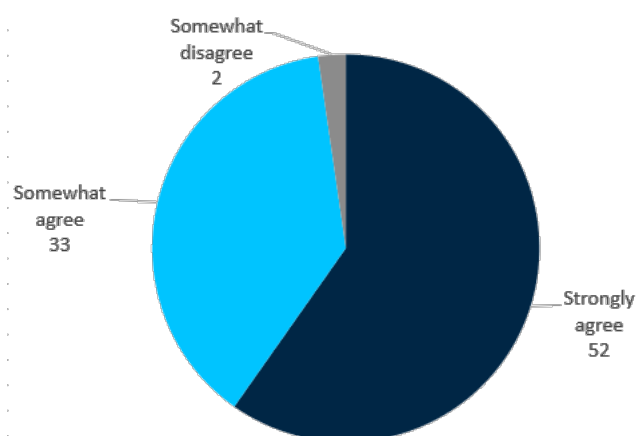- 3.4 Life Cycle Management (2 statements).

3.1 Asset Management Approach

3.1.1. Asset management principles are recognized throughout MnDOT as the driving force for asset preservation investment decisions and resource allocations.

3.1.1. Current
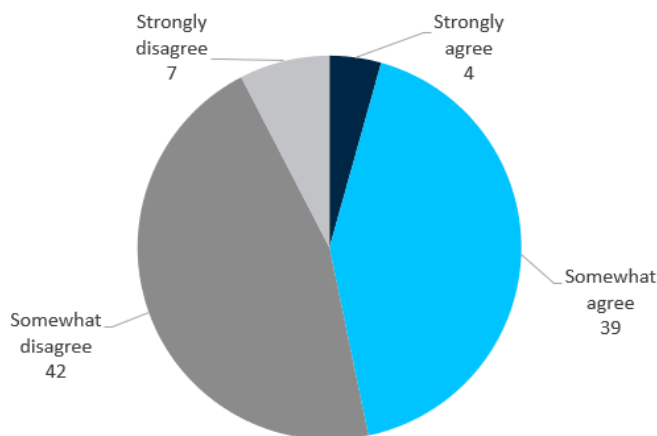
3.1.1. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	4%	4	58%	52
Somewhat agree	41%	39	37%	33
Somewhat disagree	44%	42	2%	2
Strongly disagree	8%	7	-	-
Not my area of expertise	3%	3	3%	3
Totals	–	95	–	90

Current:

- Although much improvement has occurred in the last 5-7 years, some technology systems and working groups are not connected or aligned to move this to the desired state.
- Asset management is not the only factor considered when making preservation investment decisions.
- I doubt this. What would you say these principles are? I would not be able to name them. In some cases it is known that Districts don't have $ to replace, so they need to maintain. As transportation $ are outstripped by need, this is hard to evaluate.
- I think many times our customers or political pressure are the key driving force for our spending. Now if you asked me if asset management principles are the driving force for our preservation dollars, I would strongly agree.
- I think they are recognized as just one more set of constraints.
- In some asset classes, asset management and life cycle costs drive repair and replacement decisions (i.e. centerline culverts, bridges, pavements). Some other assets are lacking.
- Many have a "reactive" approach to allocating resources, as we have so little that we are trying to just keep the status quo rather than thinking proactively.

- Throughout - nope. I don't believe preservation is done to the degree AM dictates. So does that mean we are not using the force?
- We need to allocate more resources to preventive maintenance and preservation vs. rehab and replace.

Desired:
- I am not sure what desired means, desired by me or something else?
- I think we can improve the awareness of optimum investment strategies for a broad range of assets.
- This is probably desired. In some cases there may be other driving forces.

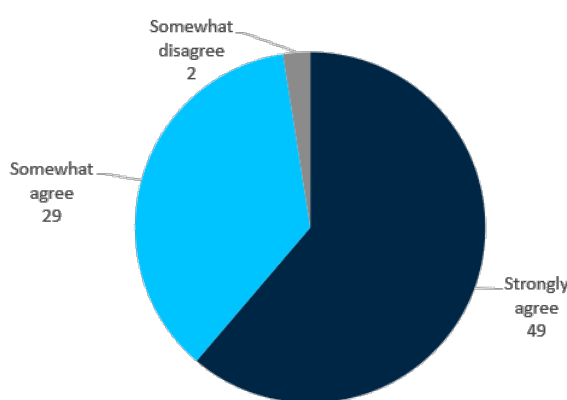### *3.1.2. MnDOT's asset management program includes processes for considering risk, long-term investments, and trade-offs with other MnDOT objectives in the identification and prioritization of investment strategies.*
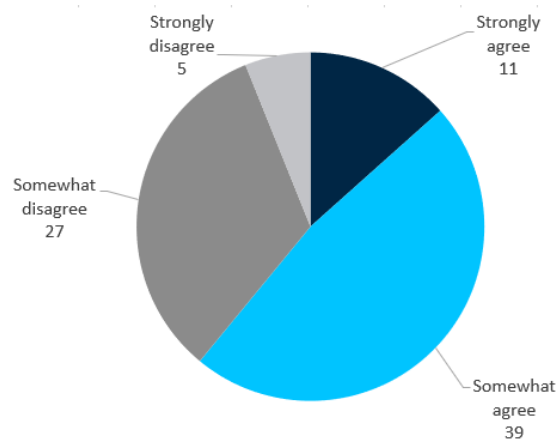
3.1.2. Current   3.1.2. Desired

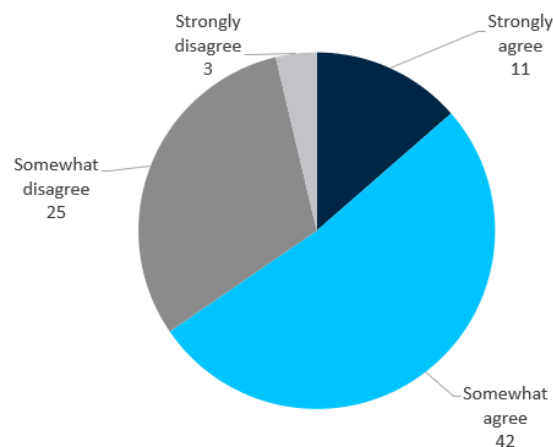| Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	12%	11	54%	49
Somewhat agree	41%	39	32%	29
Somewhat disagree	28%	27	2%	2
Strongly disagree	5%	5	-	-
Not my area of expertise	14%	13	12%	11
Totals	-	95	-	91

Current:
- Assumed AA.
- Depends on the asset and the model, I know that pavement management can run what ifs, yet hydraulics cannot.
- I have not seen this occurring.
- MnSHIP process.
- Not all investment categories have strong asset management data yet.
- Our program includes these processes, but there is work to be done to implement them.
- Some assets are set at if it is this old it must be replaced or if it is in this condition it must be worked on vs allowing assessment of risk and engineering judgement. It is easy to just say we must because this tables seas we need to.
- This is accomplished through many planning efforts and measure/target establishment efforts. Discrete risk assessments are made where necessary.
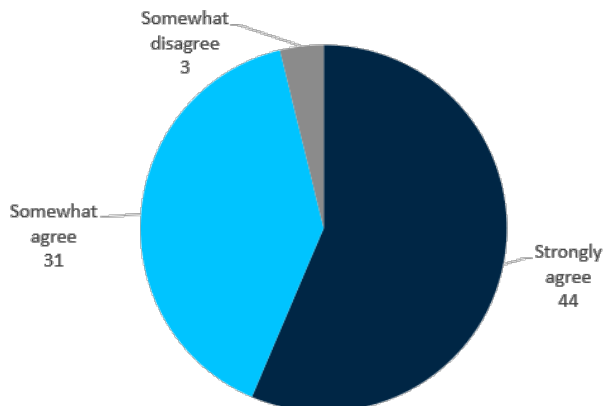
Desired:
- I am not sure what desired means, desired by me or something else?
- I think we are close to where we should be. we could perhaps monetize risk analyses.

3.1.3. The asset management program is evaluated and updated regularly to reflect changes in policy, technology, or MnDOT practices.

3.1.3. Current   3.1.3. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	12%	11	50%	44
Somewhat agree	45%	42	35%	31
Somewhat disagree	26%	25	4%	3
Strongly disagree	3%	3	-	-
Not my area of expertise	14%	13	11%	10
Totals	-	94	-	88

Current:
- Don't really have a fair history proving this one way or the other.
- I have not seen this occurring.
- In hydraulics, we still quite a ways to go to get to a baseline much less being adaptive.
- It is to the extent we are able to.
- TAMP by definition, AMPO, AMSC, IPU work on this continuously.
- The asset management group is doing a lot of great things, but I wish they did a better job of simply articulating where this is going, and what has been accomplished.
- This appears true, it is being updated based on recent changes in legislation.

Desired:
- I am not sure what desired means, desired by me or something else?
- I don't know how often it should be changed. Policy should not be changed without good reason (infrequently), technology doesn't change that fast in this business, and we should be careful implementing unknown practices.
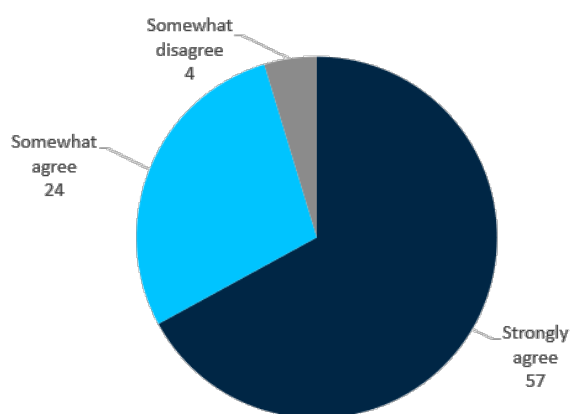- Seems so, yes.

3.2 Leadership Support

3.2.1. A strong, cross-functional team with a direct link to upper management has been established to support asset management activities.

3.2.1. Current   3.2.1. Desired
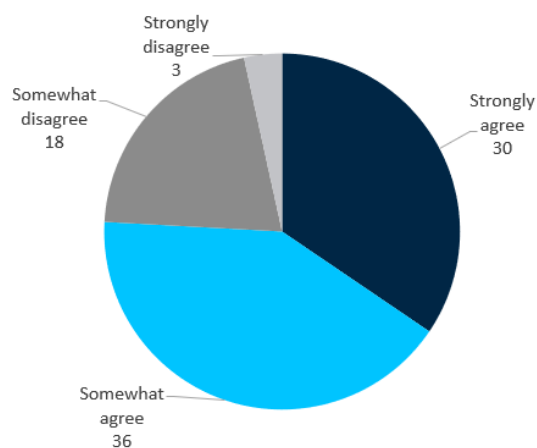
	Current		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	32%	30	63%	57
Somewhat agree	38%	36	27%	24
Somewhat disagree	19%	18	4%	4
Strongly disagree	3%	3	-	-
Not my area of expertise	8%	8	6%	5
Totals	-	95	-	90

Current:
- AMSC.
- AMSC!
- Cross functional groups exist... not sure I would say they are strong enough though.
- I believe so.
- I think there is a divide between doing asset management, having the resources to do asset management, and looking at what kind of asset management resource consumption provides the greatest ROI. As an example, why is so much detailed info being gathered on culverts? If construction is doing there job, they are verifying that the material, inverts, and workmanship are meeting specifications, so gathering all of that info again seems to be duplicative. Further, our D8 staff have rovers and equipment to do the asset data collection, yet we are hiring consultant surveyors to duplicate asset info which at this time is difficult to review and questionable quality (both getting better). Furthermore, I do not know a hydraulic engineer that would design culvert work + years later based off of a as-built invert elevation. Furthermore, how accurate does a culvert location need to be, could not a tool be developed to import the CADD info directly rather than gathering that data in the field. All I really need to know to manage culverts is what condition they are in. I do realize that some MS4s have tighter requirements, yet those could be met on a case by case basis rather than applying to all.

- We have teams, not one single team that crosses all functions.

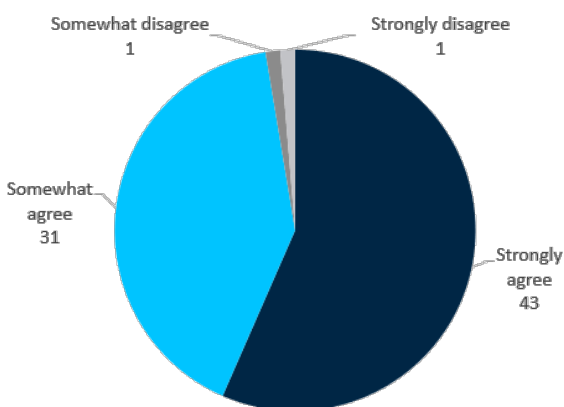Desired:

- I am not sure what desired means, desired by me or something else?
- I could be wrong on this but this is my perception.
- Need this kind of ongoing cross functional support to get AM mainstreamed.
- Needs for a TAMS expert in each district.
- Would like the cross-functional team to be recognized on the org chart and formalize the role of implementation on the project programming side.

3.2.2. AMPO's role in regularly reviewing MnDOT's asset management program for needed improvements in efficiency and effectiveness leads to improvements in agency practices.

3.2.2. Current
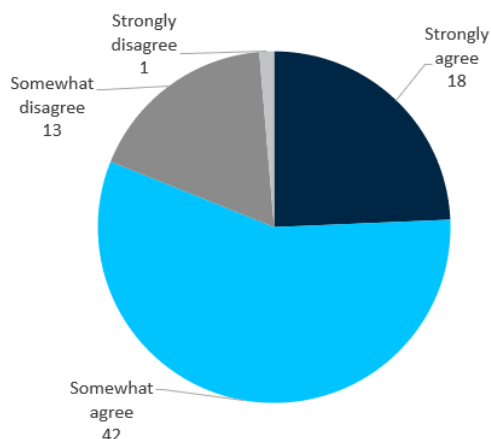
3.2.2. Desired

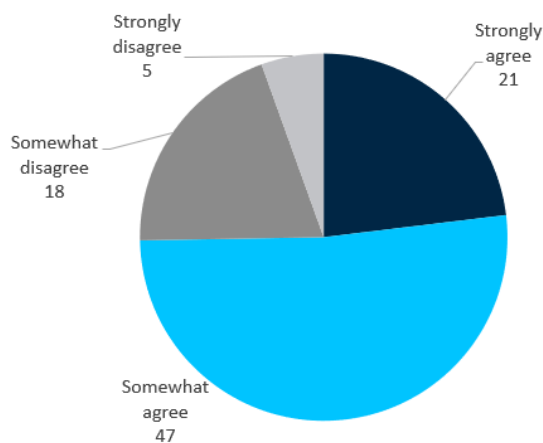| | Current | | Desired | |
Value	Percent	Count	Percent	Count
Strongly agree	19%	18	48%	43
Somewhat agree	44%	42	35%	31
Somewhat disagree	14%	13	1%	1
Strongly disagree	1%	1	1%	1
Not my area of expertise	22%	21	15%	13
Totals	-	95	-	89

Current:

- AMPO is not as deeply involved in review of the capital investment program as it has been in the maintenance area.
- Haven't seen it.
- Long ways to go in my opinion for even our most simple asset in hydraulics, culverts.
- Main focus is TAMS - should have more staff to have a more well-rounded 'program'.
- Yes, probably not happening as fast as some would desire.

Desired:

- I am not sure what desired means, desired by me or something else?
- Somewhat related to 3.2.1... need this kind of ongoing technical support for some time...

3.2.3. MnDOT leadership is committed to asset management as a core process, and this commitment is demonstrated by what they say and do, both internally and externally.

3.2.3. Current

3.2.3. Desired
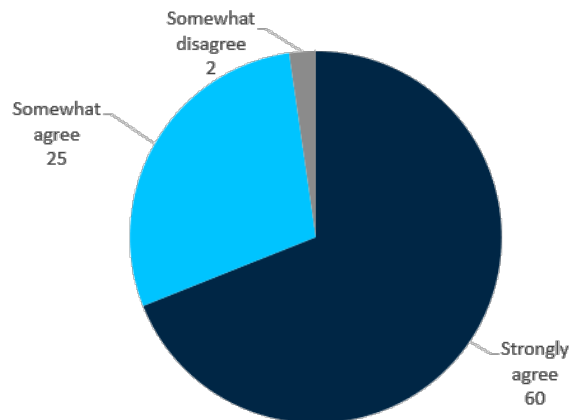
	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	23%	21	68%	60
Somewhat agree	50%	47	29%	25
Somewhat disagree	19%	18	2%	2
Strongly disagree	5%	5	-	-
Not my area of expertise	3%	3	1%	1
Totals	-	94	-	88

Current:

- Asset management should be discussed in terms of BIM. So far I haven't heard the two terns used together and what their relationship is.
- Committed to Asset Management yes, managing assets not so much. TAMS does not have tools for me to manage assets, only to inventory the assets.
- Created - dedicated senior leader in Solsrud (stature, not age), growing AMPO staff, and funding.
- From what I've heard, but I haven't been directly involved in the process, yet anyway.
- I believe there is commitment, but asset management goals suffer due to other decisions occasionally such as mega projects and pm set asides.
- It appears so.
- Most leadership is on board, but not all.
- To do so they would need to push back against politically motivated priorities.
- We are over extending ourselves with expansion projects, at the same time we can't afford preventative maintenance that will increase the life of our assets.
- We lack support for doing the work, having the correct equipment and being supported with our equipment.
- Would like to hear this from all MnDOT leaders.

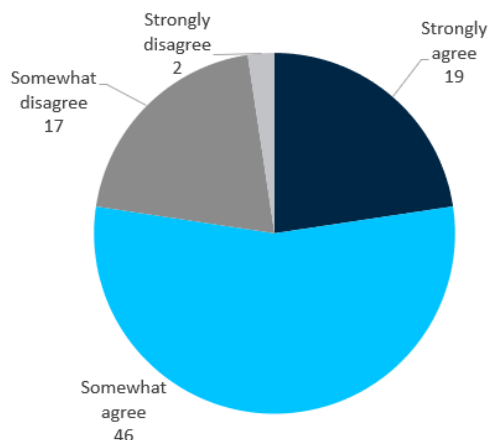Desired:

- I am not sure what desired means, desired by me or something else?
- I consider assets and liabilities worth something and would track and manage both. I.E a 1:5 inslope is valuable (an asset) and a 1:2.4 a risk (liability) and that would take little to track and be able to extract accident data, maintenance costs, and other information from a database.
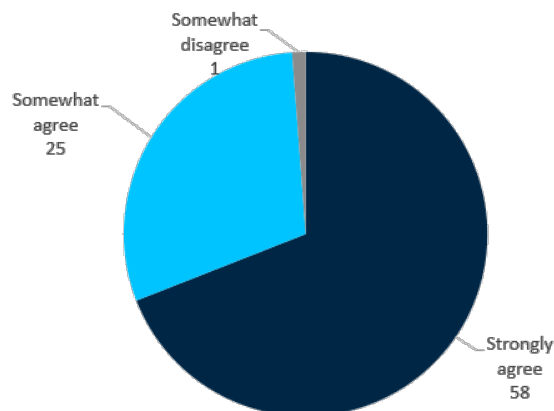- Need to see the follow through…

3.3 Asset Management Plan

3.3.1. MnDOT uses a consistent, data-driven process for identifying the asset needs and investments included in the Asset Management Plan.

3.3.1. Current   3.3.1. Desired

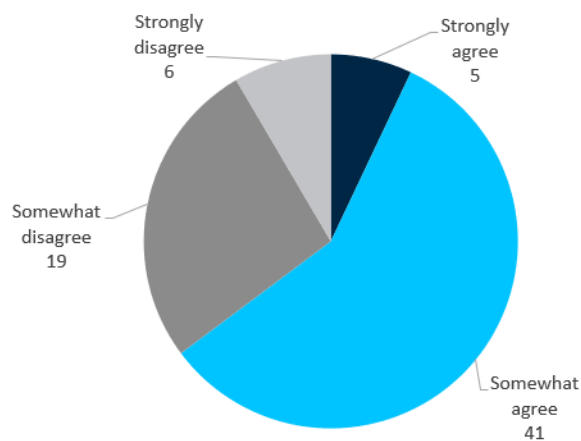| | **Current** | | **Desired** | |
Value	Percent	Count	Percent	Count
Strongly agree	20%	19	65%	58
Somewhat agree	48%	46	28%	25
Somewhat disagree	18%	17	1%	1
Strongly disagree	2%	2	-	-
Not my area of expertise	12%	11	6%	5
Totals	-	95	-	89

Current:
- I think they use it - however, data has to be correct to make tangible decisions.
- In only some asset classes and Districts.
- My particular area is very difficult to identify needs well. But pavement has a lot of data and the organization has been doing it for 100+ years and we still are not doing the lowest life cycle cost fixes because it is "too expensive". It would be a painful process now, but the lowest life cycle cost is the lowest cost if you are going to own the asset indefinitely.
- Not yet...
- Steadily getting more assets into TAMS, we are making huge improvements.
- The best available data is used.
- Unknown.

Desired:
- Accumulation of additional historical data (such as deterioration rates, cost models etc.) will help us continually improve.
- I am not sure what desired means, desired by me or something else?
- Seems the question is a fundamental AM trait?

3.3.2. The Asset Management Plan effectively influences MnSHIP investments needed to manage the most critical assets to MnDOT. (Note: Use the definition of critical assets that you defined in 1.2)

3.3.2. Current

3.3.2. Desired
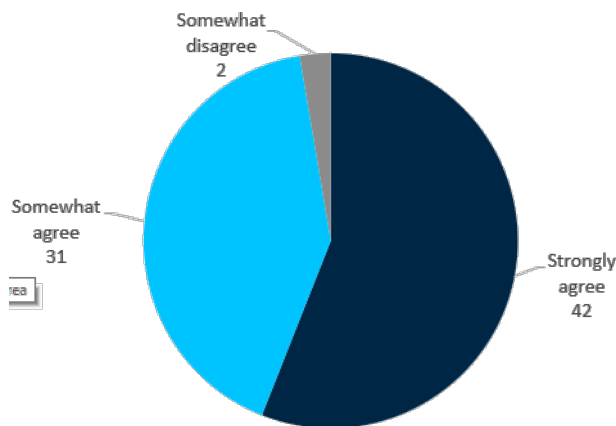
Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	5%	5	48%	42
Somewhat agree	44%	41	35%	31
Somewhat disagree	20%	19	2%	2
Strongly disagree	6%	6	-	-
Not my area of expertise	24%	23	15%	13
Totals	-	94	-	88

Current:
- Although not formal, the integration is in part due to the same individuals being involved in both processes.
- As the guidance for MnSHIP comes from the general public and what they feel is important to them it is my belief then that MnSHIP should guide Asset Management so that we can deliver to the public (or stakeholders) what they are asking for.
- I'm not sure. I know we manage the districts assets, but I'm not sure it's based on a "Plan."
- MnSHIP hasn't been updated since implementing TAMP.
- The TAMP is still maturing. It will likely be much more influential in the next MnSHIP update that it was in the last one.
- There has been some push back in spending on Roadside Infrastructure, but we have been given approval when we used data on our District's larger number of poor and very poor culverts to justify the increased need.
- Unknown.
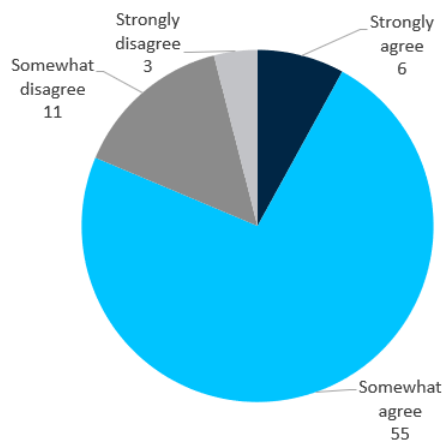- We could add more assets.

Desired:
- Continue.
- I am not sure what desired means, desired by me or something else?
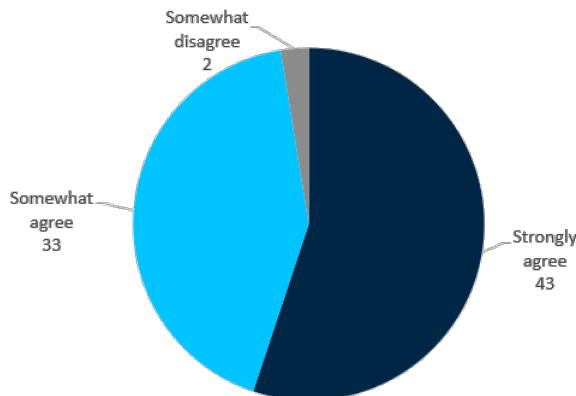- Likely.

- The asset management plan would probably not influence investment strategy yet. Right now its more of an asset inventory.

3.3.3. MnDOT's asset management practices reflect those described in the Asset Management Plan.

3.3.3. Current

3.3.3. Desired

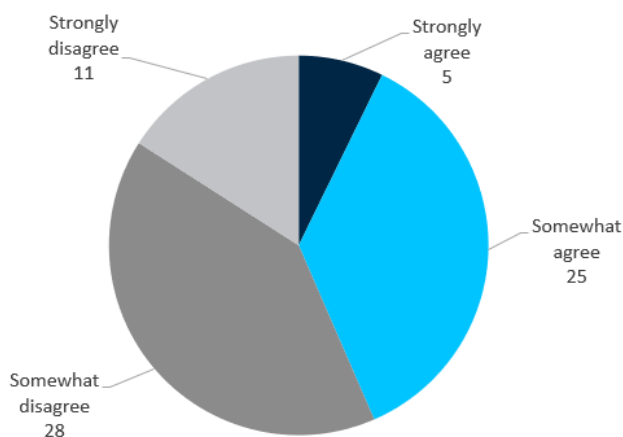|	Current		Desired	
Value	Percent	Count	Percent	Count
Strongly agree	7%	6	49%	43
Somewhat agree	60%	55	38%	33
Somewhat disagree	12%	11	2%	2
Strongly disagree	3%	3	-	-
Not my area of expertise	18%	17	10%	9
Totals	-	92	-	87

Current:

- Barriers include available resources and sufficiently broad awareness.
- I don't think we are always following the life-cycle strategies when selecting projects or type of fixes in the program.
- I have not read the plan.
- In so far as I know.
- Need more implementation agency-wide.
- Not fully integrated in the districts.
- Practice make perfect... work toward this.

Desired:

- I am not sure what desired means, desired by me or something else?
- There will probably still be projects and type of fixes selected for other reasons beyond asset management.
- They should, or visa versa.
- We can control the "awareness", resources is a bigger problem which could be aided if $'s demanded for large projects was less .

3.3.4. The Asset Management Plan, and other planning processes such as MnSHIP, adequately integrate both capital and operational needs into investment decision making.

3.3.4. Current

3.3.4. Desired
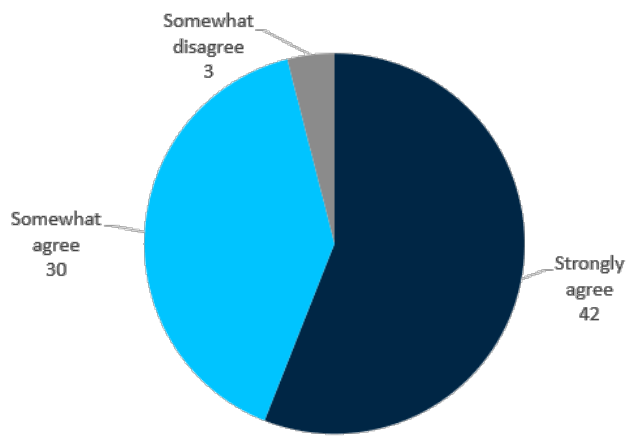
Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	5%	5	48%	42
Somewhat agree	27%	25	34%	30
Somewhat disagree	30%	28	3%	3
Strongly disagree	12%	11	-	-
Not my area of expertise	26%	24	15%	13
Totals	-	93	-	88

Current:
- I don't think MnSHIP does a very good job incorporating maintenance "tails."
- MnSHIP hasn't been updated since implementation of TAMP.
- More focus is needed on operational needs to slow the rate of deterioration of our assets.
- Most of our plans fail to capture operational needs. Our funding plans are skewed toward capital investments.
- nope, doesn't happen as far as I understand.
- So far the ability to use data to integrate capital investment decisions with maintenance investment decisions has not been available.
- Unknown.

Desired:
- I am not sure what desired means, desired by me or something else?
- The integrate of capital and operational needs into investment decision making is a goal of (some) MnDOT leadership.
- We are working at this on several fronts - maintenance measures, additional asset datasets, cost models, TAMS, 081etc. we need to stay the course.

3.4 Life Cycle Management

3.4.1. Life-cycle strategies that minimize the long-term costs of managing assets are accounted for adequately in project planning activities.

3.4.1. Current   3.4.1. Desired
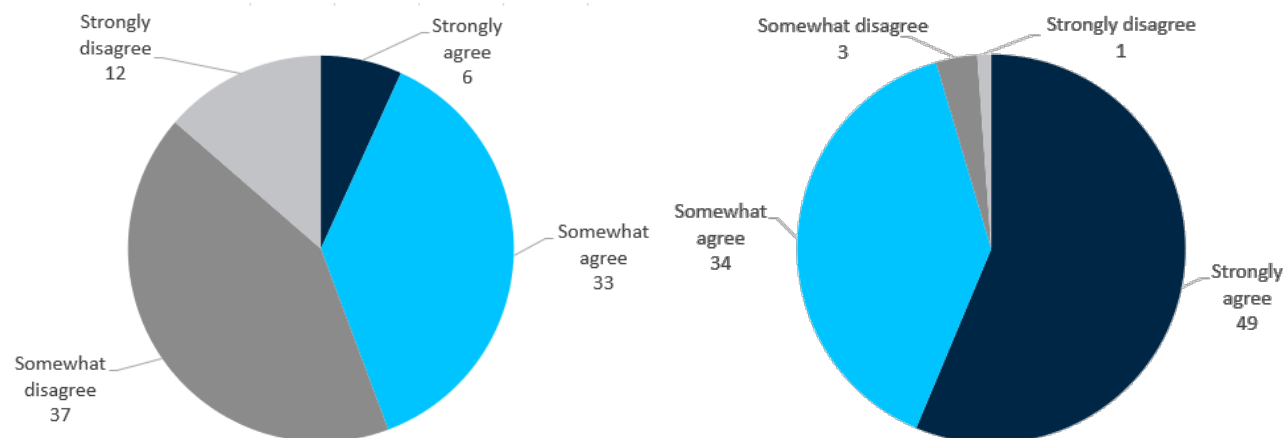
	Current		**Desired**	
Value	Percent	Count	Percent	Count
Strongly agree	6%	6	55%	49
Somewhat agree	35%	33	38%	34
Somewhat disagree	39%	37	3%	3
Strongly disagree	13%	12	1%	1
Not my area of expertise	6%	6	2%	2
Totals	-	94	-	89

Current:

- Answered above with scope changes.
- Depends on the asset. From my time in materials, pavements were done as well as we could. For other assets such as culverts, I believe we manage against roadway failure rather than longevity of the culvert, but that is probably the correct approach.
- Generally yes, but we are insufficiently funded to achieve lowest life cycle cost.
- Good for pavement and bridges, lacking for other assets.
- I have not seen evidence that minimizing long-terms costs of asset management is incorporated in project planning.
- Management of all assets are mostly driven by pavement projects, which does not allow asset owners to follow LC strategies.
- Maybe a little here and there.
- Need further research/data to improve life-cycle strategies for drainage assets.
- This is somewhat dependent on the asset.

Desired:

- I am not sure what desired means, desired by me or something else?
- Reason for doing AM.
- This seems like it would be a good goal- to consider long-term operational costs in addition to original capital cost.
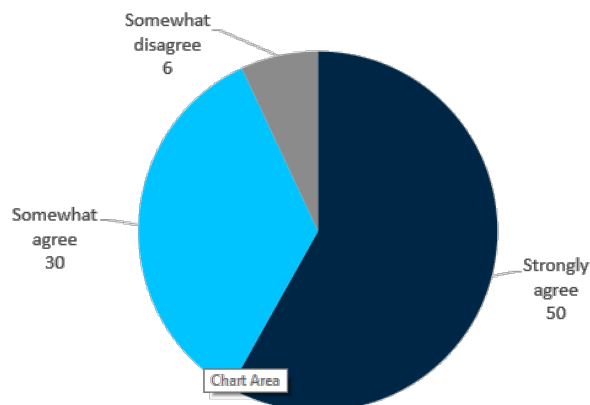
- We will always have to have work outside of an asset's life cycle management strategy, but this is still an area that needs improvement.

3.4.2. The long-term impact on maintenance and operational needs associated with different capital investment strategies are considered in planning and programming processes.

3.4.2. Current
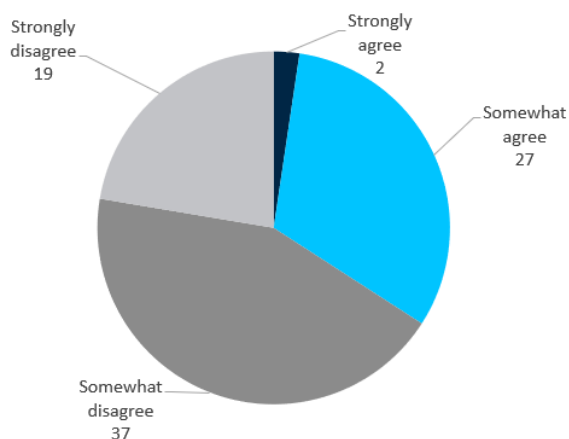
3.4.2. Desired

Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	2%	2	56%	50
Somewhat agree	29%	27	34%	30
Somewhat disagree	39%	37	7%	6
Strongly disagree	20%	19	-	-
Not my area of expertise	10%	9	3%	3
Totals	-	94	-	89

Current:
- Don't think so, but not sure...
- For our costlier assets yes, for out les costly no.
- I don't think MnSHIP does a very good job incorporating maintenance "tails."
- I feel we do consider long term impacts in planning however their are tradeoffs that sometimes drive the decision to implement specific devices.
- I have not seen evidence that minimizing long-terms costs of asset management is incorporated in project planning. Except perhaps where it enters into design-build scoring criteria.
- I suspect it varies by project manager and district.
- Need Total Cost of Ownership model.
- We are over extending ourselves with expansion projects, at the same time we can't afford preventative maintenance that will increase the life of our assets.
- We tried to start the conversation in 2017 MnSHIP but the data to support it was just being compiled.
- What additional assets are added this is not always reviewed. Such as HTCMB, intersection modifications and expansion project. These take more to maintain but I don't think this is always considered and evaluated.
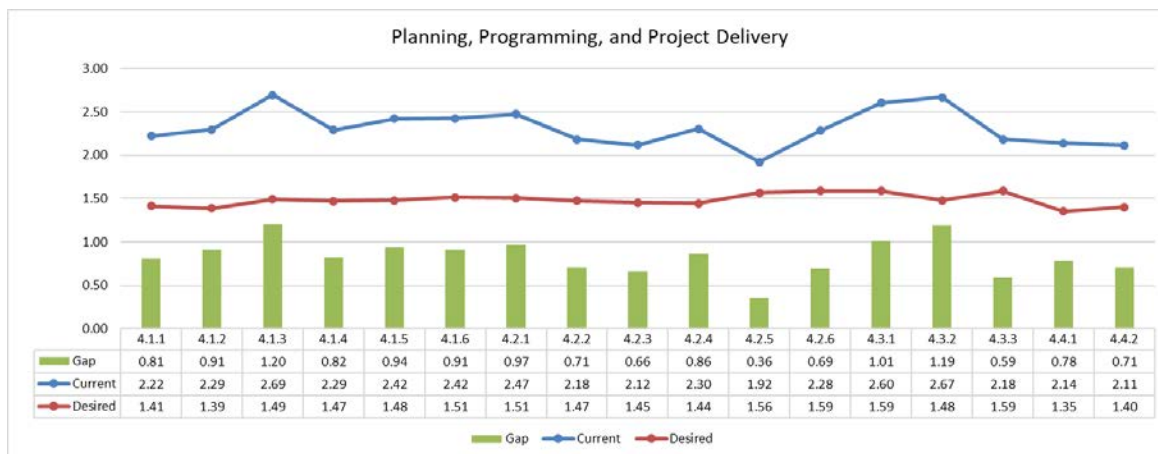
Desired:
- I am not sure what desired means, desired by me or something else?

- We need to understand this and make decisions knowing it.

4.0 Planning, Programming, and Project Delivery
Gap Analysis For All of Section 4.0, Planning, Programming, and Project Delivery

There are three statements within this section that have a gap greater than 1.0, indicating a gap between current and desired practices. The first is item 4.1.3, which explores the degree to which planning and programming processes consider capital, operational, and maintenance needs on a statewide, corridor, and regional basis. The other two gaps are in the Resource Allocation section. Item 4.3.1 explores whether program trad-offs are based on an analysis of benefits rather than historical formulas and 4.3.2 investigates whether systemwide asset performance expectations are communicated to each program area when resources are allocated.

Planning, Programming, and Project Delivery

|	4.1.1	4.1.2	4.1.3	4.1.4	4.1.5	4.1.6	4.2.1	4.2.2	4.2.3	4.2.4	4.2.5	4.2.6	4.3.1	4.3.2	4.3.3	4.4.1	4.4.2
Gap	0.81	0.91	1.20	0.82	0.94	0.91	0.97	0.71	0.66	0.86	0.36	0.69	1.01	1.19	0.59	0.78	0.71
Current	2.22	2.29	2.69	2.29	2.42	2.42	2.47	2.18	2.12	2.30	1.92	2.28	2.60	2.67	2.18	2.14	2.11
Desired	1.41	1.39	1.49	1.47	1.48	1.51	1.51	1.47	1.45	1.44	1.56	1.59	1.59	1.48	1.59	1.35	1.40

For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Planning, Programming, and Project Delivery group, including:

- 4.1 Planning, Programming, and Project Delivery (6 statements).
- 4.2 Performance-Based Management (6 statements).
- 4.3 Resource Allocation (3 statements).
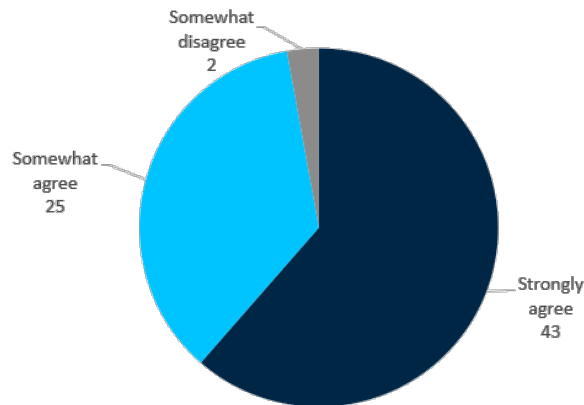- 4.4 Project Delivery (2 statements).

4.1 Planning and Programming Processes

4.1.1. Statewide long-range plans are consistent with asset management strategic goals and objectives and reflect realistic projections of future revenue.

4.1.1. Current   4.1.1. Desired
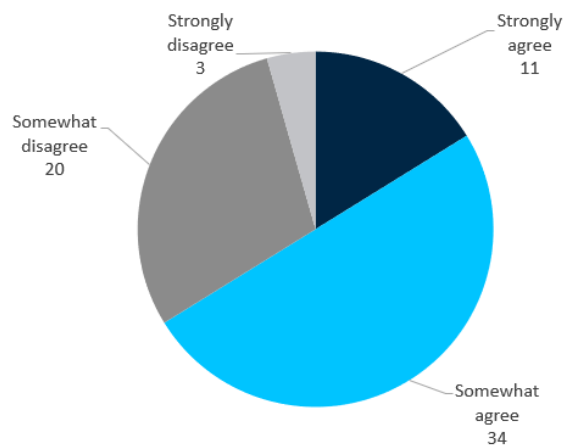
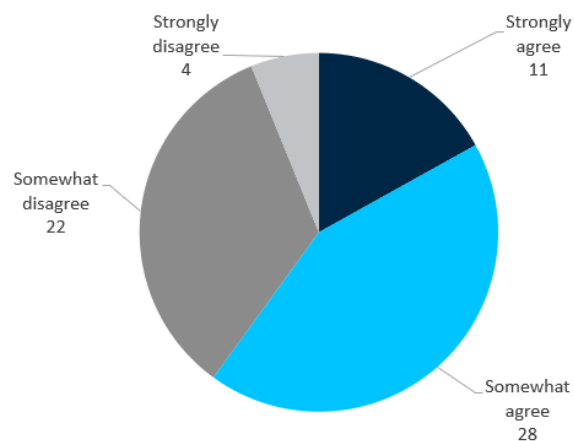| Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	12%	11	51%	43
Somewhat agree	37%	34	29%	25
Somewhat disagree	21%	20	2%	2
Strongly disagree	3%	3	-	-
Not my area of expertise	27%	25	18%	15
Totals	-	93	-	85

Current:

- The TAMP was completed in 2019 and has not yet been fully integrated into other plans.
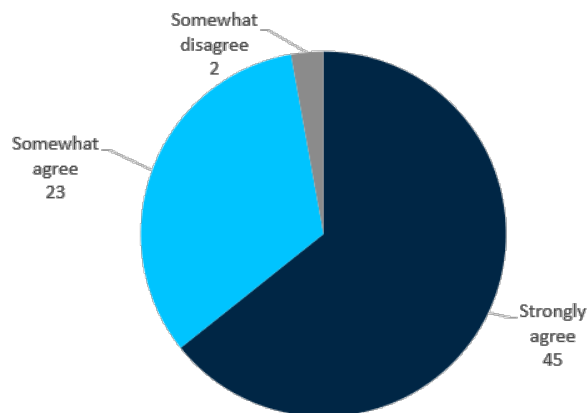- Again, it depends. Pavements yes, hydraulics not so much.

Desired:

- I am not sure what desired means, desired by me or something else?

4.1.2. Long-range planning processes are aligned with the Asset Management Plan and have strong linkages to ensure MnDOT objectives are achieved.

4.1.2. Current

4.1.2. Desired

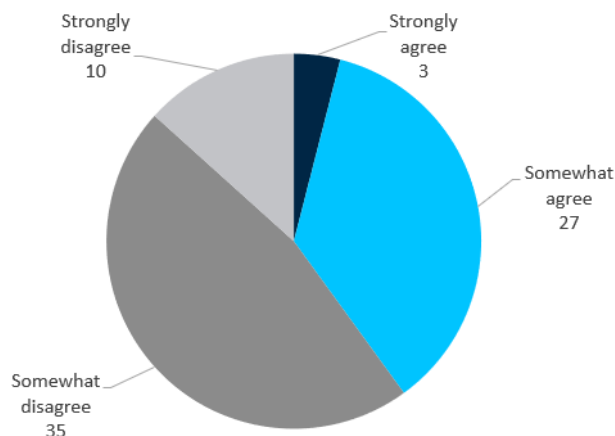|	Current		Desired	
Value	Percent	Count	Percent	Count
Strongly agree	12%	11	52%	45
Somewhat agree	30%	28	26%	23
Somewhat disagree	24%	22	2%	2
Strongly disagree	4%	4	-	-
Not my area of expertise	30%	28	20%	17
Totals	-	93	-	87

Current:

- Again, for costly assets I agree, for less costly assets we are more managing the risk.
- The TAMP was completed in 2019 and has not yet been fully integrated into other planning processes.
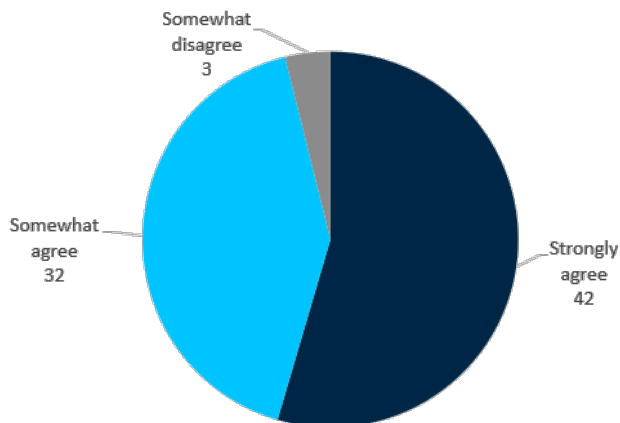
Desired:

- I am not sure what desired means, desired by me or something else?

4.1.3. Planning and programming processes consider capital, operational, and maintenance needs on a statewide, corridor, and regional basis.

4.1.3. Current   4.1.3. Desired

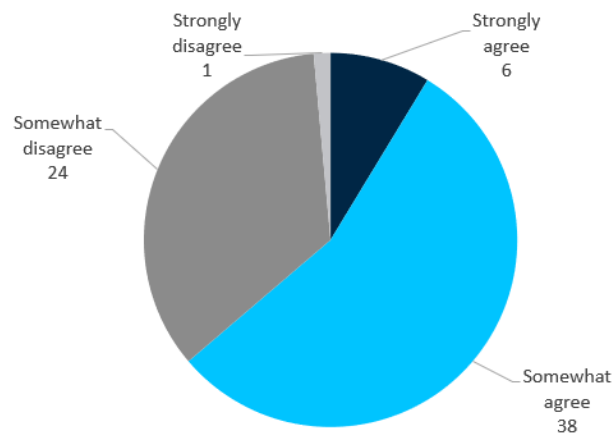|	**Current**		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	3%	3	48%	42
Somewhat agree	29%	27	37%	32
Somewhat disagree	38%	35	3%	3
Strongly disagree	11%	10	-	-
Not my area of expertise	19%	18	11%	10
Totals	-	93	-	87

Current:
- Additional maintenance resources are needed to perform preventive and reactive maintenance to extend the life our assets and reduce life cycle costs.
- Long term operational needs are not adequately considered.
- MnDOT needs to improve on planning for capital costs for long term maintenance needs as new systems and new technology is installed as part of construction projects.
- Operational costs are not considered very well when planning capital projects.
- Yea - maintenance made the survey... doubt operational and maintenance needs.

Desired:
- I am not sure what desired means, desired by me or something else?
- Need comprehensive approach.

4.1.4. Project programming activities are fully aligned with investments outlined in the Minnesota GO Vision, the Statewide Multimodal Transportation Plan, State Highway Investment Plan (MnSHIP), the 10-year Capital Highway Investment Plan (CHIP), the State Transportation Improvement Plan (STIP), and the Asset Management Plan.

4.1.4. Current   4.1.4. Desired
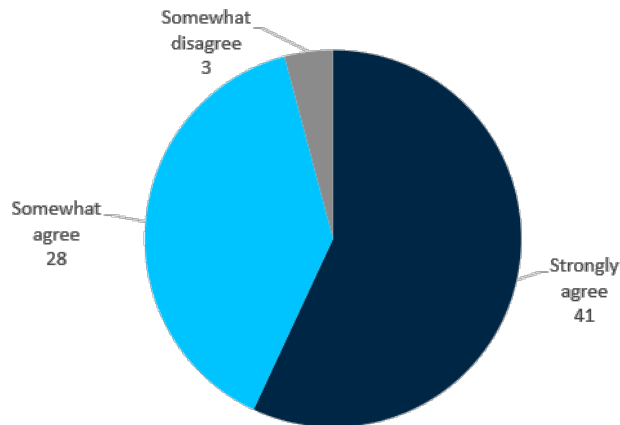
Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	6%	6	47%	41
Somewhat agree	41%	38	32%	28
Somewhat disagree	26%	24	3%	3
Strongly disagree	1%	1	-	-
Not my area of expertise	26%	24	17%	15
Totals	-	93	-	87

Current:
- Breaking down the funding by Districts sometimes leads to decisions that aren't fully aligned with the TAMP. Funding for preventative maintenance isn't in these plans.
- Expansion projects notwithstanding/
- I agree with all of the statements except alignment with the Asset Management Plan. That is not fully developed yet/
- I believe we are over spending in some categories (lower funded) at the expense other others (higher funded)/
- I don't know how you can be. 6 individual plans with no overarching document or tool to analyze the investments or results? Are we tracking all of these various plan goals?
- I think they start out that way and then get morphed by public or political pressures.
- It is more complicated than picking a project 10-20 years out and knowing how it will deteriorate. if it is projected to be it may not actually be.
- It's a lot of competing objectives...but it could align better.
- It's frustrating to see our local stakeholders developing transportation infrastructure. Something seems mis-aligned.
- Our program actually over emphasizes asset preservation to the detriment of other goals and objectives. We often over perform on asset condition and still wring our hands that

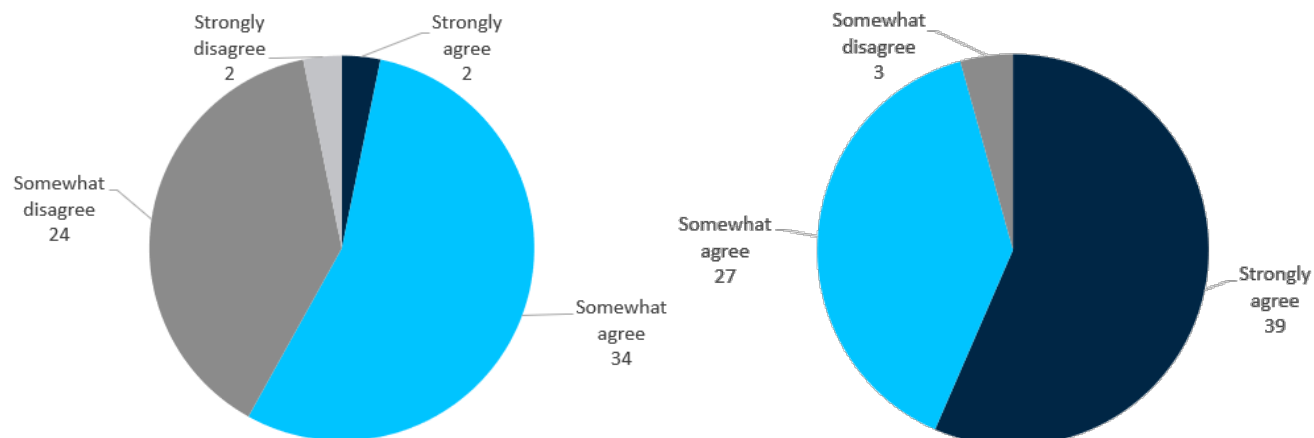things are bad rather than hitting out condition targets, understanding we've made risk-based tradeoffs.

Desired:

- Feels right.
- I am not sure what desired means, desired by me or something else?

4.1.5. The asset investment strategies contained in the Asset Management Plan are implemented through the CHIP, the STIP, and Annual Work Plans.

4.1.5. Current   4.1.5. Desired

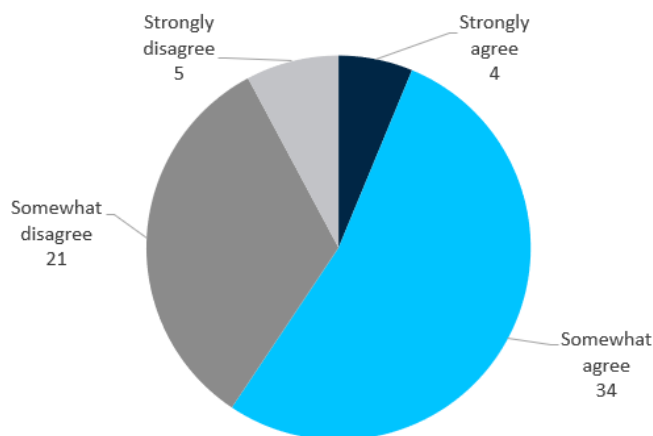| Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	2%	2	45%	39
Somewhat agree	37%	34	31%	27
Somewhat disagree	26%	24	3%	3
Strongly disagree	2%	2	-	-
Not my area of expertise	33%	31	21%	18
Totals	-	93	-	87

Current:
- Annual work plans are not universally or consistently deployed.
- At the STIP and CHIP balancing meeting, only pavement and bridge give their report out on condition.   Why isn't there more data on other items? Where is the TAMP in these discussions?
- I am not sure.
- I am unsure where the preventative maintenance funding is included.
- Preventive maintenance is not as well accounted for in the capital investment plans.
- The TAMP investment mentions the importance of long term fixes to pavements to meet performance goals, Good For IT! Unfortunately the other plans and funding targets don't align with that philosophy and low cost, short term fixes are the result.
- We aren't sufficiently capitalized to full implement the strategies identified in the TAMP. For some assets, yes, but not consistently.
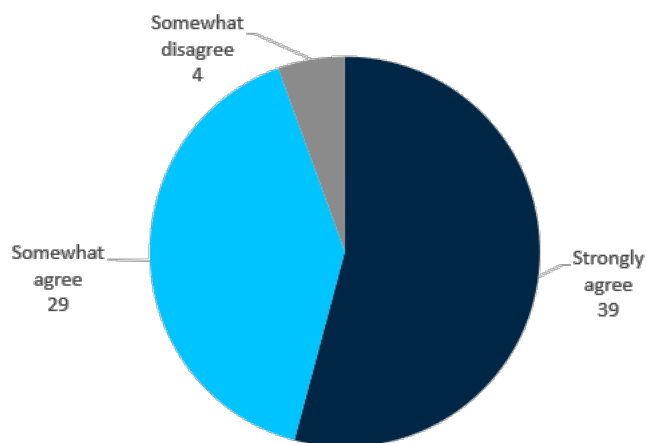
Desired:
- Alignment needed.
- This would only be desired with sufficient capital resources. Otherwise, we would be sacrificing other goals/objectives.

4.1.6. MnDOT can track actual project and service delivery against the program plan so that adjustments can be made and/or consistency determined.

4.1.6. Current   4.1.6. Desired

	Current		Desired	
Value	Percent	Count	Percent	Count
Strongly agree	4%	4	44%	39
Somewhat agree	37%	34	33%	29
Somewhat disagree	23%	21	5%	4
Strongly disagree	5%	5	-	-
Not my area of expertise	31%	29	18%	16
Totals	-	93	-	88

Current:
- Even though I think we can I don't think we do. For projects we don't use actual cost for items to report % of cost to the various categories. Especially for Extra Work.
- I haven't seen this capability. For this to work reliably, you will also need to determine the quality of the work done in projects. Quality variation add a lot of uncertainty in predictive models.
- I keep bouncing between bridges and other assets, but am generally answering on my view regarding other or all assets. If bridges only, my answers may be somewhat different.
- Not yet, but it's coming.
- We can track it, but can we manage it proactively???
- We can, but there is room for improvement.

Desired:
- Current assignment.
- I don't think changes or adjustments should be held against the planners. the project needs will change over time.
- This would be nice, but not sure resources it would take to accomplish would provide enough benefit.
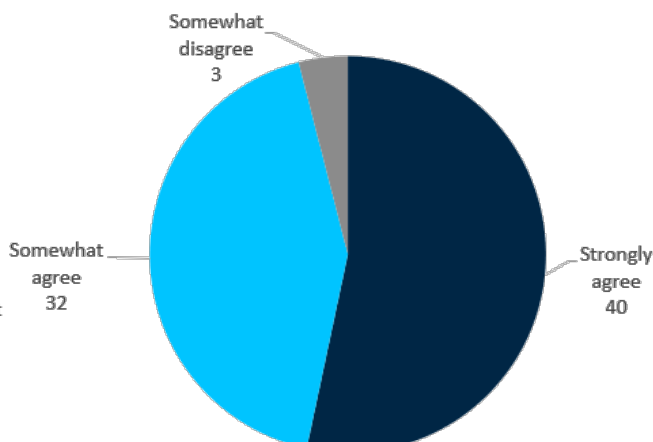
4.2 Performance-Based Management

4.2.1. For critical assets (as defined in 1.1), performance-based budgeting concepts guide program planning and development by relating project costs to expected levels of service or performance.

4.2.1. Current
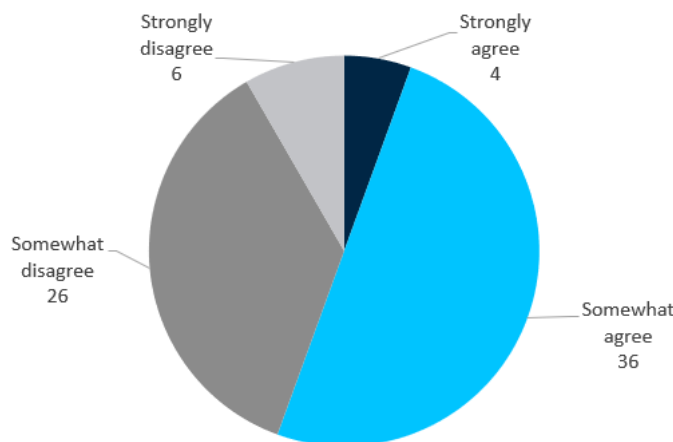
4.2.1. Desired

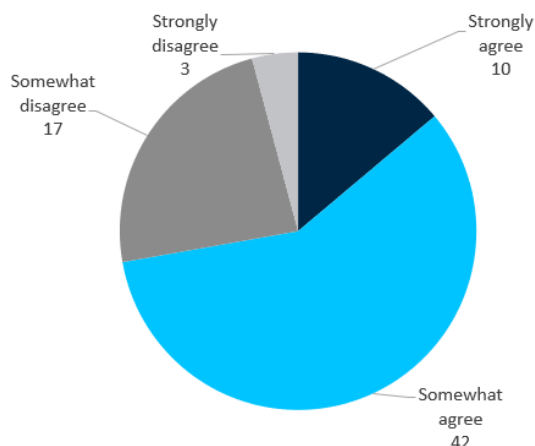| Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	4%	4	45%	40
Somewhat agree	39%	36	36%	32
Somewhat disagree	28%	26	3%	3
Strongly disagree	7%	6	-	-
Not my area of expertise	22%	20	15%	13
Totals	-	92	-	88

Current:
- Capitol side programing - right? not my area.
- For major capital assets (pavement, bridge, etc.) yes.
- For most of the critical assets, yes, but not all.
- For pavement and bridges.
- Guardrail struggles, people attempting to avoid updating to current standards continues to be an issue.
- I haven't seen this. Performance-based budgeting would reward good performances, but current condition funding does not necessarily do that and may in fact do the opposite.
- Performance data is not universally available.
- Some of the investment categories do not have performance data to do that.

Desired:
- A trade off exercise in the making...
- Difficult to define different levels of service for culverts/deep stormwater tunnels.
- Hopefully good data on asset initial quality and deterioration curves can identify best practices for managing the infrastructure to obtain the desired performance.
- I am not sure what desired means, desired by me or something else?

4.2.2. Performance data are used to quantify the impacts of program decisions.

4.2.2. Current

4.2.2. Desired
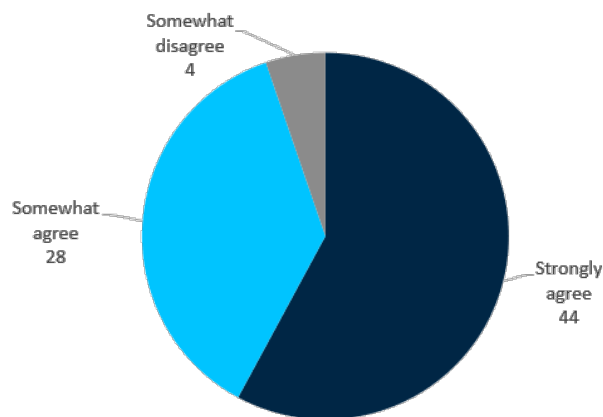
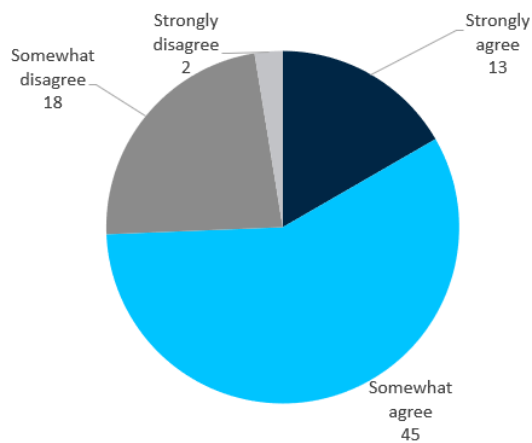| | **Current** | | **Desired** | |
Value	Percent	Count	Percent	Count
Strongly agree	11%	10	50%	44
Somewhat agree	46%	42	32%	28
Somewhat disagree	19%	17	5%	4
Strongly disagree	3%	3	-	-
Not my area of expertise	21%	19	14%	12
Totals	-	91	-	88

Current:

- Feel like capitol again (program decisions)?
- I don't know if there are any quantifying studies or direction for guardrail that I have seen.
- I don't see a lot of this, targets (budgets) set the funding and the projects scoped and designed to match available funding.
- On some assets, i.e., pavement and bridge.
- They are for Major asset's but less so for other assets.
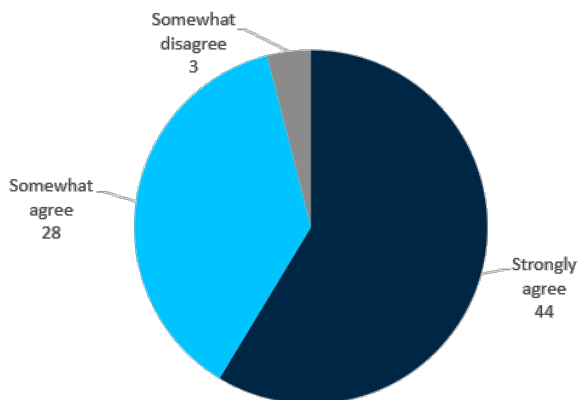- Yes for major assets.

Desired:

- I am not sure what desired means, desired by me or something else?
- I don't know that we are going to get the data we need to do this.
- We should be able to expand the process to other assets.

4.2.3. Performance data are used to provide feedback for future planning and programming priorities.

4.2.3. Current

4.2.3. Desired

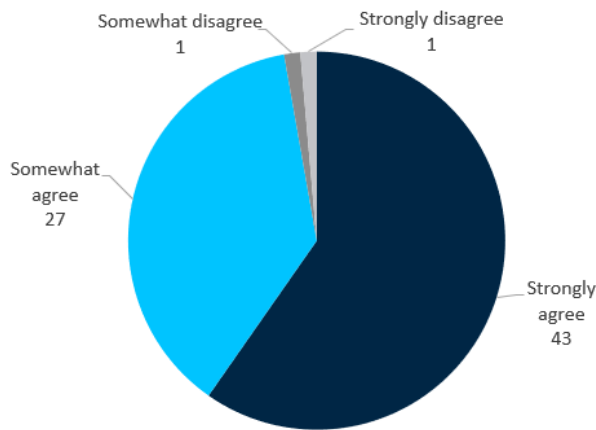|	**Current**		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	14%	13	52%	44
Somewhat agree	49%	45	33%	28
Somewhat disagree	20%	18	4%	3
Strongly disagree	2%	2	-	-
Not my area of expertise	15%	14	12%	10
Totals	-	92	-	85

Current:
- Major assets (pavements, and bridge) do a pretty good job, not so good for lower order assets.
- More so only for mainline pavement and bridges.
- On some assets, i.e., pavement and bridge.
- Used for pavements and bridges, but not other asset classes. Those 2 likely drive the STIP, but budget should be available to address other assets based on performance data.
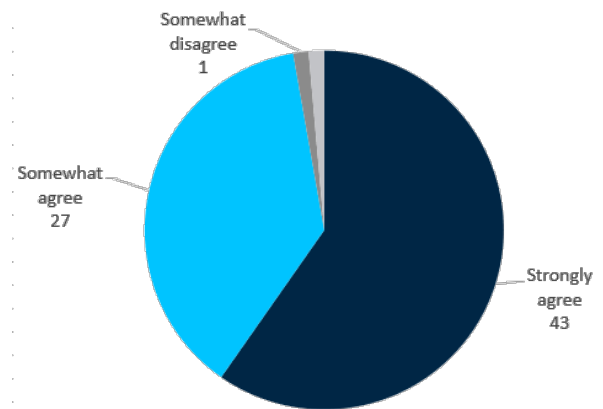
Desired:
- I am not sure what desired means, desired by me or something else?

4.2.4. Performance data are used to consider adjustments to policy objectives.

4.2.4. Current

4.2.4. Desired

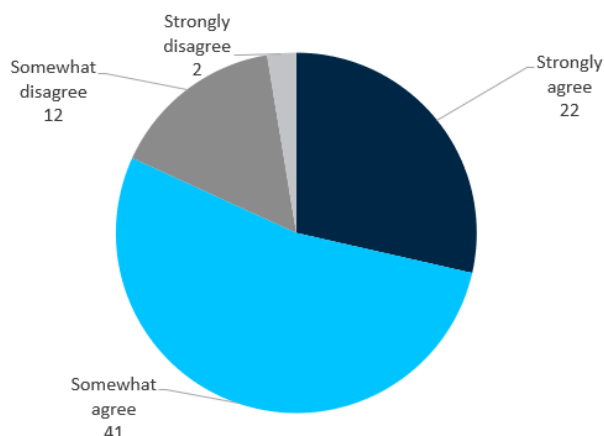|	**Current**		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	11%	10	49%	43
Somewhat agree	37%	34	31%	27
Somewhat disagree	21%	19	1%	1
Strongly disagree	7%	6	1%	1
Not my area of expertise	25%	23	17%	15
Totals	-	92	-	87

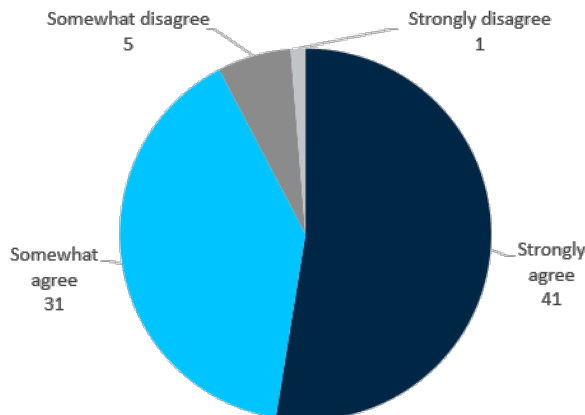Current:

- With some assets.

Desired:

- Considered - sure, why not?

4.2.5. Performance targets are established based on historical trends, current conditions, and projected conditions.

4.2.5. Current

4.2.5. Desired

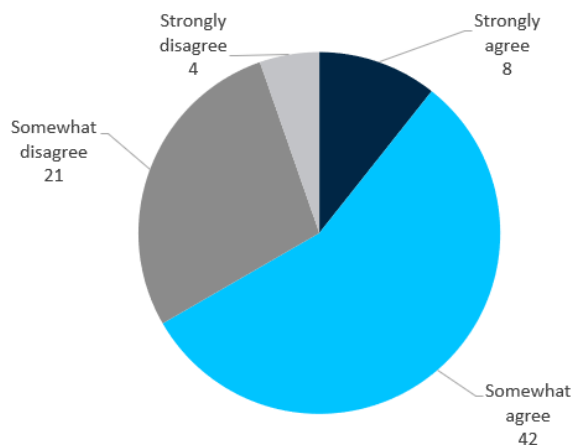|	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	24%	22	48%	41
Somewhat agree	46%	41	36%	31
Somewhat disagree	13%	12	6%	5
Strongly disagree	2%	2	1%	1
Not my area of expertise	14%	13	9%	8
Totals	-	90	-	86

Current:
- Are set at historically acceptable levels.
- I think we are good at this (I'm not Deanna or Mitch).
- I'm not sure how these are set.
- Not just these. Also stakeholder expectations and risk.
- Performance targets as we define them in MN are not based solely on trends.
- Presume this means state targets and not the federal definition of targets being set for 2 and 4 years.
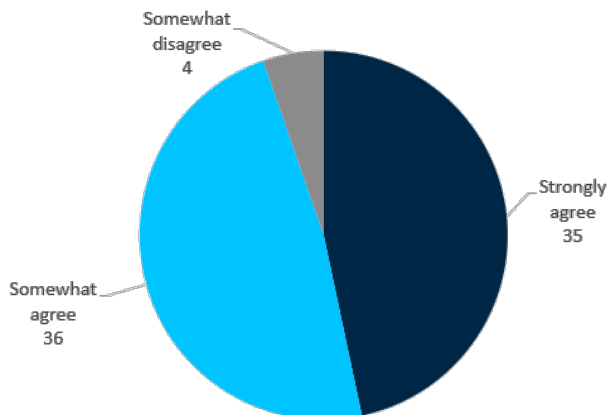
Desired:
- And maybe other reasons too - public input, optimum life cycle, etc.
- I am not sure what desired means, desired by me or something else?
- Just because something has been exceptionally good does not mean it needs to stay that way. May be overachieving at something.
- Performance targets should be based on knowledgeable driver surveys. Show them performance outcomes or conditions and the corresponding costs to determine what level of performance the drivers want to pay for.
- Presume this means state targets and not the federal definition of targets being set for 2 and 4 years.
- Targets should be based upon LCCA and other criteria and public input.
- Under development.

4.2.6. Performance targets consider stakeholder expectations at the appropriate level.

4.2.6. Current

4.2.6. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	9%	8	40%	35
Somewhat agree	47%	42	41%	36
Somewhat disagree	23%	21	5%	4
Strongly disagree	4%	4	-	-
Not my area of expertise	17%	15	14%	12
Totals	-	90	-	87

Current:

- A survey a few years ago found out that 2/3 (I think) of people didn't want detours. This is like saying 7 or 10 people want ice cream. A better question is who wants a detour if it gets a project done in 2/3 the time at 2/3 the cost over no detour. You can get feedback that's valuable from that.
- At times our district slides down the perceived slope of stakeholder expectation. Many times, a few influential stakeholders grab value for themselves at the cost to everyone else.
- Not sure we fully understand stakeholder expectations (and tradeoffs they're willing to make).
- Performance targets do not consider stakeholder needs, but rather MnDOT needs.
- Varies

Desired:

- I am not sure what desired means, desired by me or something else?
- It's not practical to ask customers how many condition 3 culverts we should have...
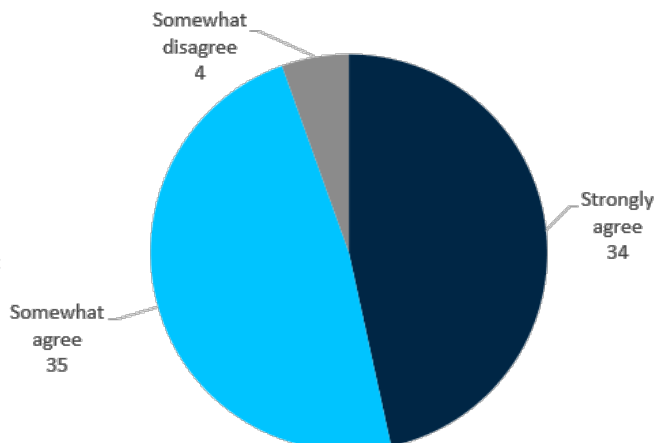- Should take into consideration stakeholders and customers.

4.3 Resource Allocation

4.3.1. Program trade-offs (e.g., preservation versus rehabilitation) are based on an analysis of benefits and costs rather than historical formulas or splits.
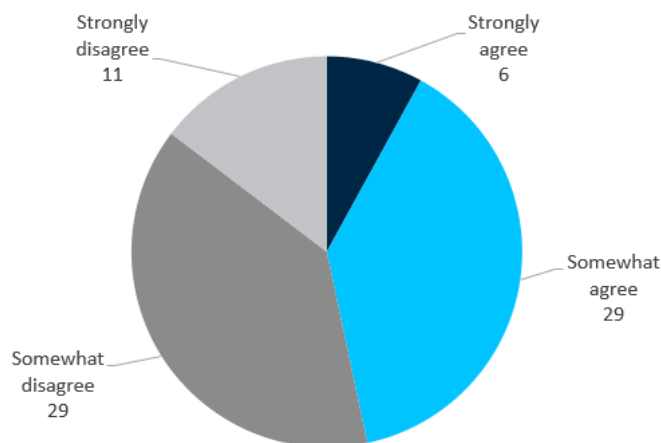
4.3.1. Current   4.3.1. Desired

Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	7%	6	40%	34
Somewhat agree	32%	29	42%	35
Somewhat disagree	32%	29	5%	4
Strongly disagree	12%	11	-	-
Not my area of expertise	18%	16	13%	11
Totals	-	91	-	84

Current:
- Agree but I think we still need to spend more on preservation.
- From project planning studies, it seems that costs and benefits are considered (rather than only a historic practice).
- I am uncertain how preventative maintenance fits into the trade-off analysis and pavement modelling.
- I think people need to make sure we are clear what we meant when talking about preservation. I generally consider anything other than a reconstruct preservation. Now this questions also asked about rehabilitation. What is meant by that. What about Preventative Maintenance? Definitions do matter.
- Major assets.
- Majority of DRMP is formula based.
- More based on outreach, public planning process.
- This question is flawed. preservation vs rehab isn't really a program decision.
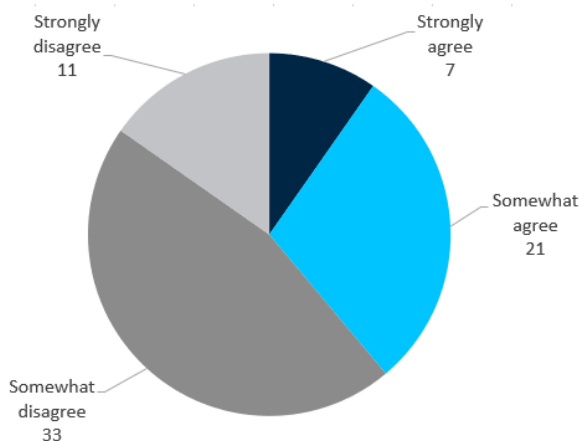
Desired:
- Add other assets.
- I am not sure what desired means, desired by me or something else?

- I'm not sure of the definition of benefits and costs, but lowest lifecycle costs would be a big driver for me. I anticipate that most of our assets will continue to be MnDOT owned for a long time.
- Subsequently, not sure if it's about benefits and costs or more of a qualitative public process.
- There are so many needs it is hard to not target some split value.

4.3.2. Expectations for systemwide asset performance are clearly communicated to each program area when resources are allocated.

4.3.2. Current   4.3.2. Desired
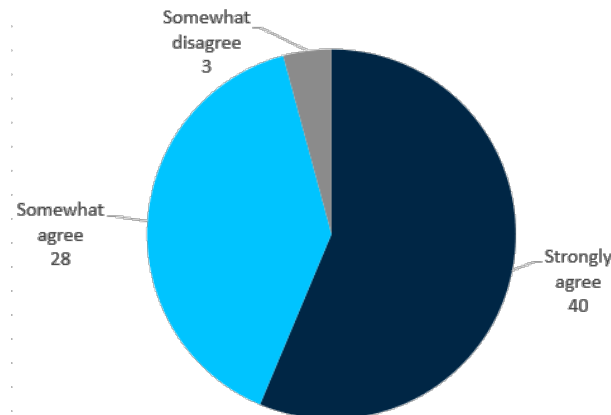
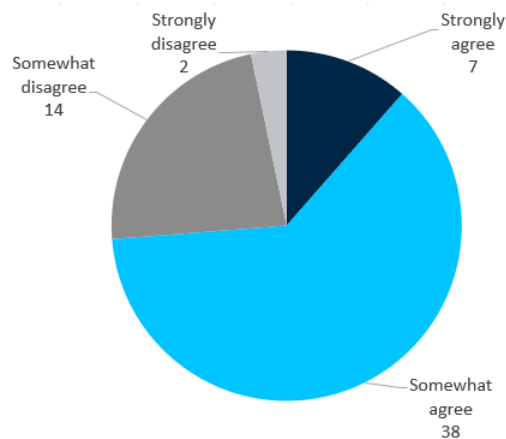|	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	8%	7	47%	40
Somewhat agree	23%	21	33%	28
Somewhat disagree	36%	33	3%	3
Strongly disagree	12%	11	-	-
Not my area of expertise	22%	20	17%	15
Totals	-	92	-	86

Current:
- Most of our projects are pavement condition driven and budget determines the fix with that fix's anticipated life communicated or at least available for review.
- Not all investment categories have that capability yet.
- The expectations may be communicated, but they're not necessarily followed/internalized. For example, pavements/materials still think we're shooting for 2% poor on the entire system. We're not.
- This needs a follow-up question about communications to districts, not just program areas (presuming you mean a CO specialty office).
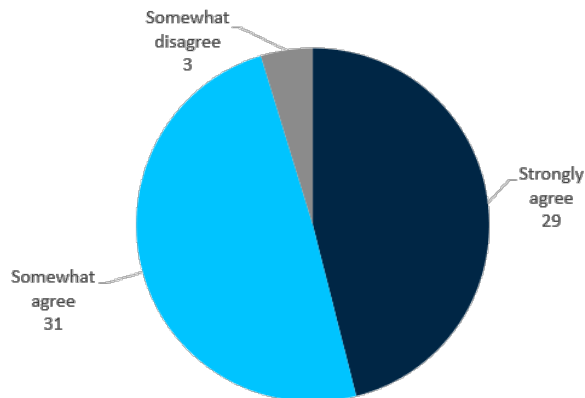
Desired:
- I am not sure what desired means, desired by me or something else?
- Most of our drainage repairs are anticipated to last for 50 - 100 years, based on materials lifespan. If that lifespan is not achieved it usually appears to be a installation quality issue. I don't really have a drainage fix available in a project that will only last the 12 years of a bit overlay.

4.3.3. Regional needs are coordinated through a partnership with external stakeholders, including Regional and Metropolitan Planning Organizations.

4.3.3. Current

4.3.3. Desired

	Current		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	8%	7	34%	29
Somewhat agree	41 %	38	36%	31
Somewhat disagree	15%	14	3%	3
Strongly disagree	2%	2	-	-
Not my area of expertise	34%	31	27%	23
Totals	-	92	-	86

Current:

- Are we talking about regional money here or just state $$? Coordination is desired, but this question is confusing me. Need a question about MnDOT districts.
- I think regional "wants" are coordinated to a high extent and that most of what is being discussed is far from needs.
- Not really for asset management decisions.
- They are somewhat coordinated. Better direction in the cost splits would be valuable. Currently the phrase "MnDOT can pay up to 100%" is used but doesn't provide much value. Is it expected that MnDOT pays some range (30-60%) or for contributing area or some other factor. When MnDOT pays 100% there is little incentive to right size the infrastructure.
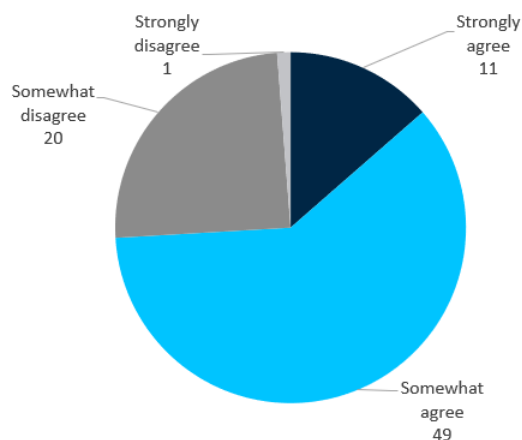
Desired:

- I am not sure what desired means, desired by me or something else?
- These regional needs should be agreed to and documented and adhered to, unless of course conditions change. The highway systems capacity or level of service should not be compromised to accommodate poor local planning or investment.
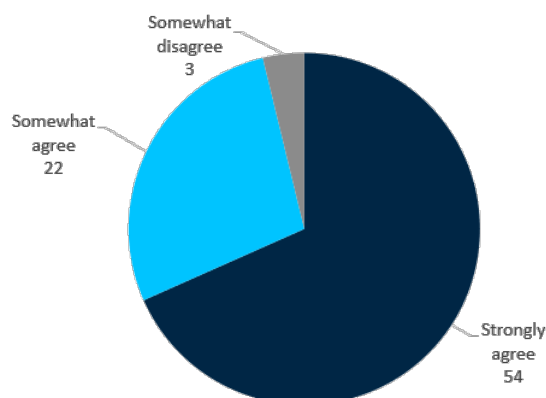- Tough enough to manage our own assets...

4.4 Project Delivery

4.4.1. Projects that are designed and built are consistent with planned scopes and purpose.

4.4.1. Current

4.4.1. Desired

	Current		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	12%	11	62%	54
Somewhat agree	53%	49	25%	22
Somewhat disagree	22%	20	3%	3
Strongly disagree	1%	1	-	-
Not my area of expertise	12%	11	9%	8
Totals	-	92	-	87

Current:
- For planned scope and purpose, at what stage of the process?
- Most of the time. Better now than say 10-20 years ago.
- My impression is that project scope creep is a problem.
- Project Development can always take a project in a direction that the original scope anticipated.
- Sometimes.
- The projects are more or less built close to the scope. My functional unit has had good luck with district management allowing scope changes if conditions change or more information comes to light after the scoping is complete.
- We have made progress in scoping but there is still work to do. Funding variability has a large impact on the program.
- We try to stay within the scope, If during Project Development more information is found out then the original scope may need to be reviewed.
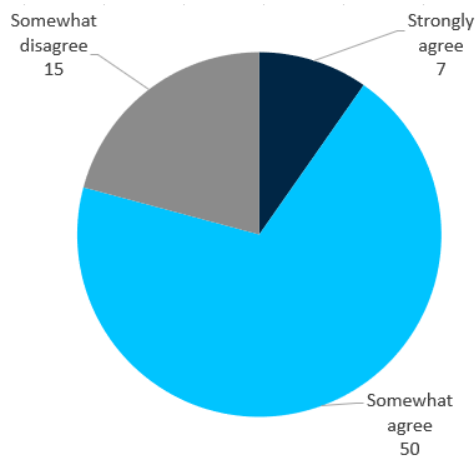
Desired:
- I am not sure what desired means, desired by me or something else?
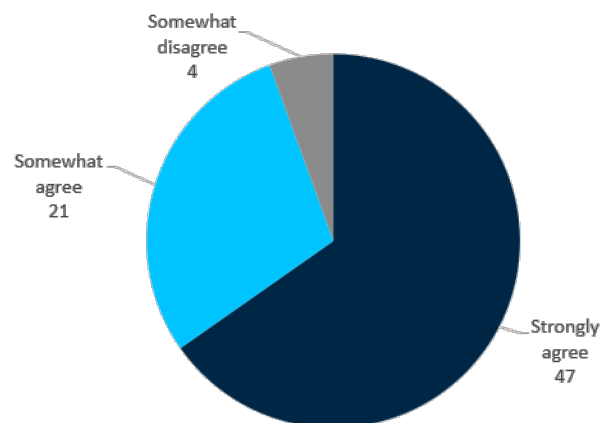- If they keep all the needed fixes in the scope and project.

- Initial scopes & purpose can sometimes be faulty due to insufficient information/homework, which can be caused by lack of resources. Ideally projects would be fully and accurately scoped initially, but very difficult to do.
- We are scoping projects 5 and 6 years out and it is tough to get the scoping information complete with the competition from plan reviews, drainage complaints, pm burden, permit reviews, increasing project regulatory permit requirements, construction & maintenance support, and more overhead. It is good to have a process to add a failing culvert to a project scope when it is found. By the same token, I would think that turn lanes and local wants could be addressed early in the scoping process.

4.4.2. Projects that are designed and built match planned investments in MnSHIP and the Asset Management Plan.

4.4.2. Current   4.4.2. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	8%	7	54%	47
Somewhat agree	55%	50	24%	21
Somewhat disagree	16%	15	5%	4
Strongly disagree	-	-	-	-
Not my area of expertise	21%	19	17%	15
Totals	-	91	-	87

Current:

- Again, I think we sometimes overspend in one category (lower target) at the cost of another (higher target).
- Generally true, but we have some high profile and high cost exceptions that have recently happened.
- I don't deal with this a lot, but what I do see of the funding targets the district has to abide by makes me think that it is matching the planned investments.
- Most of the time. Better now than say 10-20 years ago.
- Not sure about the asset management plan.
- We hear more and more that plans are not being followed.
- With some exceptions.

Desired:

- I am not sure what desired means, desired by me or something else?
- I understand there needs to be SOME flexibility here.

5.0 Data Management
Gap Analysis For All of Section 5.0, Data Management

There was only one item in this section that had a gap greater than 1.0, indicating close alignment between current and desired practices in most areas. The gap for item 5.1.1 explores how complete, accurate, and current the asset inventory of key assets is. The definitions used for defining key assets were presented in Section 1.0, Introductory Material. It is worth noting that the last two statements in the Data Governance section were very close to having a gap of 1.0. These items explore the establishment of data quality expectations and methods as well as the regularity with which new strategies are reviewed to improve efficiency and effectiveness.

Data Management

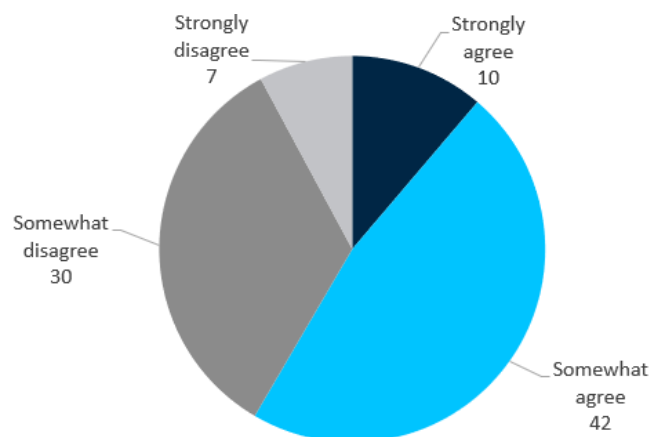|	5.1.1	5.1.2	5.1.3	5.2.1	5.2.2	5.3.1	5.3.2	5.3.3	5.3.4	5.3.5
Gap	1.08	0.99	0.94	0.72	0.57	0.69	0.71	0.81	0.99	0.96
Current	2.38	2.34	2.26	2.08	1.84	2.24	2.24	2.28	2.40	2.45
Desired	1.30	1.36	1.32	1.36	1.27	1.55	1.53	1.47	1.42	1.49

For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Data Management group, including:

- 5.1 Asset Inventory (3 statements).
- 5.2 Asset Condition and Performance (2 statements).
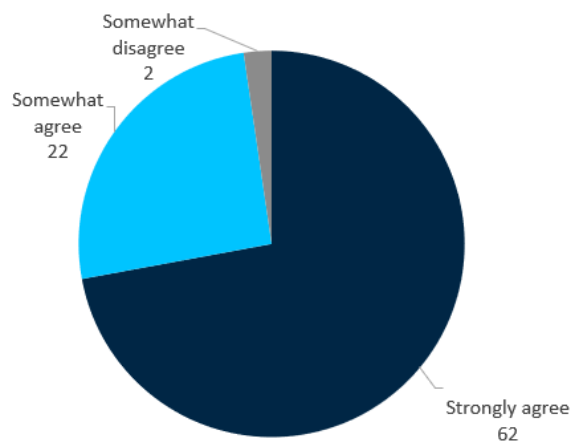- 5.3 Data Governance (5 statements).

5.1 Asset Inventory

5.1.1. MnDOT maintains a complete, accurate, and current inventory of its key transportation assets. (Note: Use the definition of key assets from 1.1)

5.1.1. Current   5.1.1. Desired

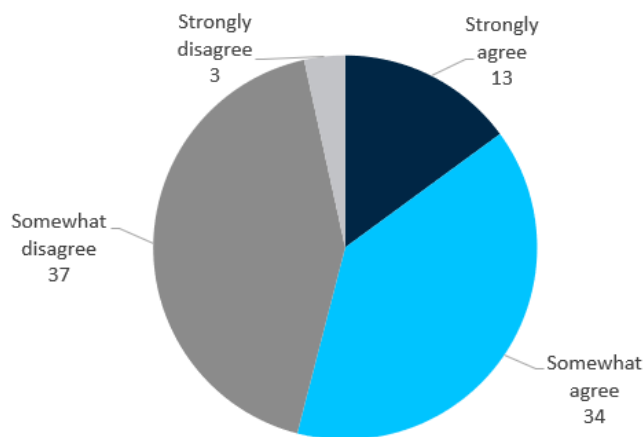| Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	11%	10	71%	62
Somewhat agree	45%	42	25%	22
Somewhat disagree	32%	30	2%	2
Strongly disagree	8%	7	-	-
Not my area of expertise	4%	4	1%	1
Totals	-	93	-	87

Current:

- Depends on definition of "current inventory" - perhaps some inspection schedules make sense, perhaps some should be done more frequently.
- I think this depends on the nature of the inventory. For the most part, we probably have a current inventory of most things, but their performance or maintenance status may not be current.
- I would add a lot of items to the asset list.
- Inventory varies based on the assets described in 1.1.
- Maintaining asset inventories is a challenge. It takes time and resources.
- Mostly agree, but many assets are missing within current inventories.
- Not sure for other assets. For bridges, this is true.
- Not yet.
- Partial.
- Some assets better than others.
- TAMS for signing still have issues but we are working towards collecting more accurate info.
- TAMS pipes could be better.
- Vast improvement recently.
- We have good data for bridges and pavements, but not as good for other assets such as retaining walls and noise walls.
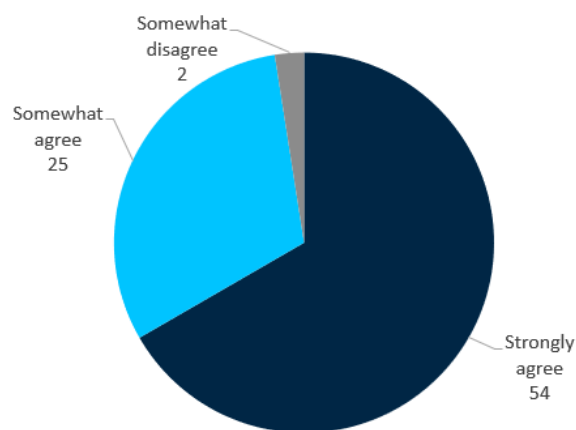
Desired:

- I am not sure what desired means, desired by me or something else?
- Making rapid progress.
- This is critical.
- When we decide on the what, we should.

5.1.2. The processes for collecting inventory and condition data provide the right level of detail when considering the need to balance infrastructure maintenance costs, accuracy, and criticality of the asset in terms of safety and risk to the traveling public.

5.1.2. Current   5.1.2. Desired

	Current		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	14%	13	64%	54
Somewhat agree	37%	34	30%	25
Somewhat disagree	40%	37	2%	2
Strongly disagree	3%	3	-	-
Not my area of expertise	6%	6	4%	3
Totals	-	93	-	84

Current:

- I don't exactly know what level of detail is needed to balance infrastructure maintenance costs, accuracy, and criticality of the asset... so I don't know if the processes are there?
- I think we collect too much information. Much of it does not have long term value. We don't necessarily need to know everything about everything to make good decisions about assets.
- If all the districts would collect & use the data.
- In addition to Hydinfra inspections, we usually go out and "stick our heads in pipes" of the poor or severe culverts. The Hydinfra does give us a level of information we did not have more than 20 years ago, but is incomplete for hydraulic design and plan development.
- It depends. I believe our condition rating for culvert inspections done by hydraulic staff and maintenance is the correct level. I do not know if the as-built data is to the correct level.
- It's getting better.
- My only questions is if the maintenance activities/improvements are included in the pavement model/condition data.
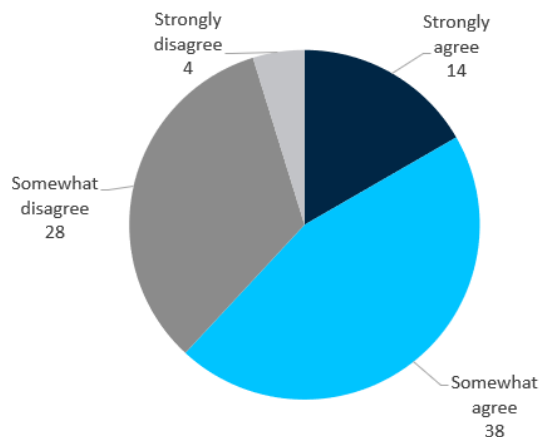- Not sure for other assets. For bridges, this is true.

- Some areas do not have adequate resource/equipment to collect the data and access to the data is cumbersome, for District GIS personnel.
- We get too detailed at times, we are not profit driven business, so are not attentive to waste. Be great at big stuff, need to let go little stuff.
- We probably need to do better at condition data. Have you seen some of the in-place retaining walls or foundations of high-mast light towers?
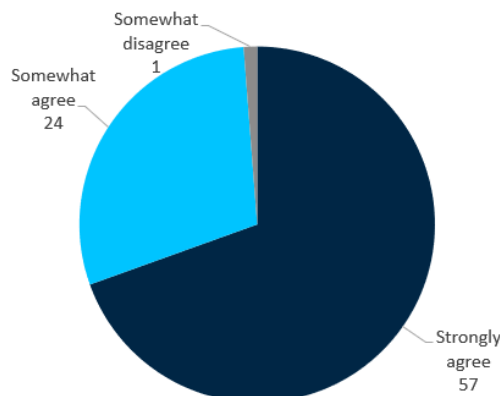
Desired:
- I am not sure what desired means, desired by me or something else?
- I have not heard of upkeep of the guardrail information.
- It would be nice to have more information, but that can sometime require pipe cleaning, stream bypass, video taping and other techniques that can be expensive.
- See next gen As-built Standard.

5.1.3. The processes for collecting inventory and condition data are sustainable over the long-term.

5.1.3. Current

5.1.3. Desired

| | Current | | Desired | |
Value	Percent	Count	Percent	Count
Strongly agree	15%	14	66%	57
Somewhat agree	41%	38	28%	24
Somewhat disagree	30%	28	1%	1
Strongly disagree	4%	4	-	-
Not my area of expertise	10%	9	6%	5
Totals	-	93	-	87

Current:

- I don't think we understand this one at all. I don't think we have calculated any ramifications.
- If adequately funded, delegated, coordinated, and championed, yes.
- It depends. I do not believe we have the resources or support for as-built data. I do not believe we have the resources or support to collect additional inventory data such as storm sewer in our district. We do have the resources to collect the asset inventory that we are currently collecting. (culverts) due to maintenance staff handling the load.
- Not sure for other assets. For bridges, this is true.
- Not sure if we are staffed to keep up our inventories.
- Some were a one-time push, or done by temp staff. not necessarily sustainable.
- Still have issues in collecting data in the field. Most of the time the data is collected but entered in the office due to technology and com issues. Inefficient and we are seeing some turn over in our signing crew because of it.
- There is a need for someone concentrating on collection of the data.
- This process could be improved and equipment provided to make this easier.
- We have incrementally added data collection and inventory updates to many positions. This takes away time from doing the work on the assets that we are maintaining.
- We spent a significant sum of $ on the LIDAR scan, but I don't know what the plan / process is to keep this data current.

- Yes, we rely on 2 maintenance staff who are improving and better understanding the data we need and are very supportive. I don't know that getting more information for inventory purposes is wise economically.

Desired:

- As the inventory changes those assets need to be updated.
- I am not sure what desired means, desired by me or something else?
- See next gen As-built Standard.
- This is critical but will likely take additional $$
- We need to go into and level of AM with full understanding of this.

If you selected a rating of 1 or 2 for 5.1.1 above, which asset inventories do you think are needed now?
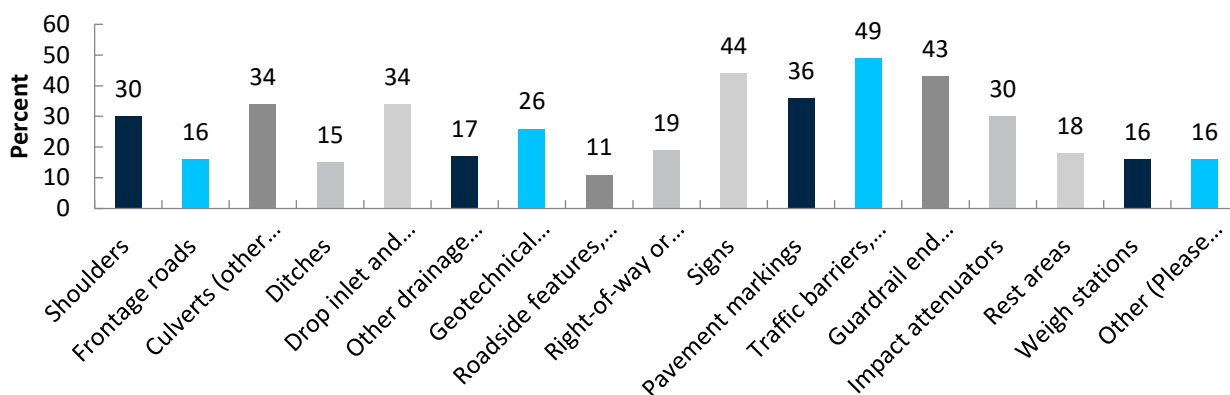
Value	Count
Shoulders	30
Frontage roads	16
Culverts (other than centerline culverts)	34
Ditches	15
Drop inlet and storm drains	34
Other drainage features	17
Geotechnical features	26
Roadside features, such as fencing or vegetation	11
Right-of-way or easements	19
Signs	44
Pavement markings	36
Traffic barriers, median barriers, guardrail, or cable	49
Guardrail end treatments	43
Impact attenuators	30
Rest areas	18
Weigh stations	16
Other (Please Specify)	16

Other (specified)	Count
We do have inventory for some of these already	1
Bridge Approach Panels	1

| Other (specified)	Count
Did you mean a 3 or 4 rather than a 1 or 2? Lighting inventory is still a work in progress.	1
I could add additional, yet with lack of support/resources for our current collection request I believe that collecting more is not in the cards unless we are going to commit staffing to do so. Of course the next question is, is it worth it?	1
ITS	1
Maybe these cant be gotten to immediately, but all of them require expenditures, periodic investment, provide value if maintained and can be liabilities if ignored.	1
Retaining Walls	1
Signals, TMS	1
Special Vegetation such as pollinator or native prairie grasses. Maintenance does not know they planted during construction and do not maintain the vegetation in a way that assures the growth is successful. We spend a lot of money on the seed and do not perform the correct processes. Also things that Construction does in a project to meet stakeholders requirements (DNR/MPCA, others) example, MnDOT installed large aggregates in a culvert to promote fish spawning, years down the road Maintenance thought that these rocks should not be here and were causing drainage issues and they were removed by Maint.	1
All important	1
Construction and maintenance agreements	1
Data	1
If you answer 1 or 2 to 5.1.1 means you agree with quality of the data not what you would add.	1
Ramps	1
Select ditches	1
Signals & its	1
Totals	16

5.2 Asset Condition and Performance

5.2.1. Performance data on key assets is collected in accordance with a periodic schedule that meets regulatory and agency requirements and provides timely and accurate information on status and performance. (Note: Use the definition of key assets from 1.1)
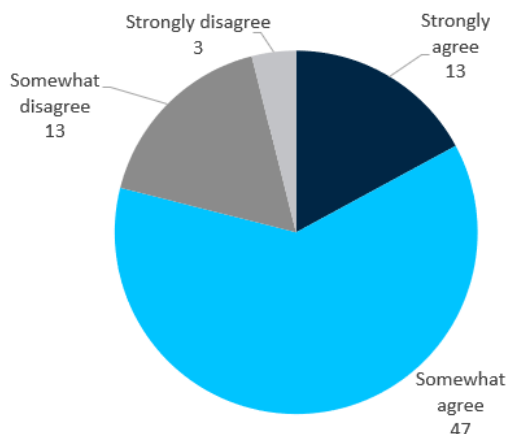
5.2.1. Current   5.2.1. Desired
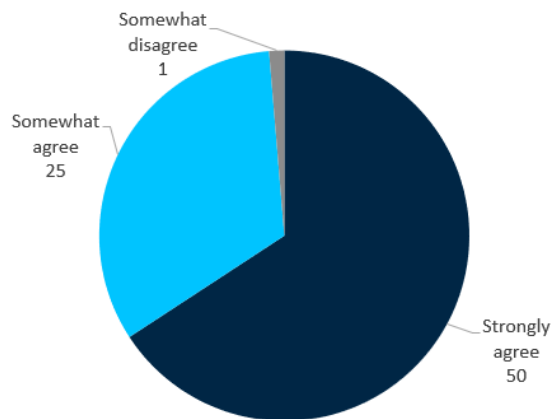
Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	14%	13	60%	50
Somewhat agree	52%	47	30%	25
Somewhat disagree	14%	13	1%	1
Strongly disagree	3%	3	-	-
Not my area of expertise	16%	15	8%	7
Totals	-	91	-	83

Current:
- Bridge inspections include guardrail that is attached to each bridge.
- Data collection is always subject to not being perfect due to human involvement.
- No guidance or extra resource to accomplish.
- Not sure for other assets. For bridges, this is true.
- Strongly agree on drainage infrastructure and bridges.
- What we do have/collect meets the "strongly agree" category, however, we don't collect all I indicated in 1.1.
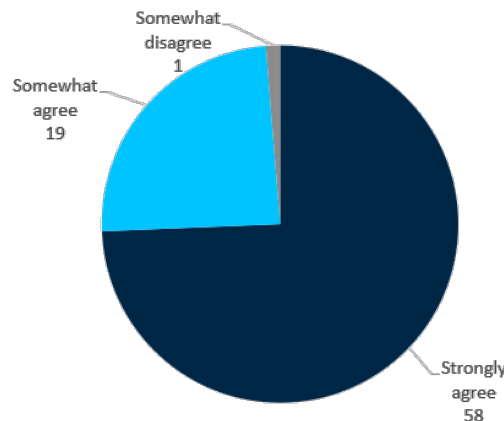
Desired:
- I am not sure what desired means, desired by me or something else?

5.2.2. Condition assessments are completed by trained individuals to ensure the quality of the results.

5.2.2. Current
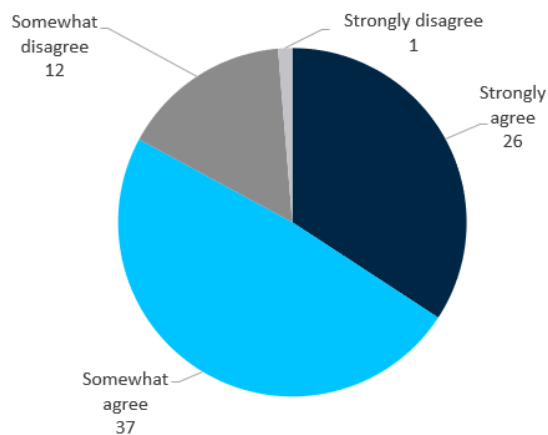
5.2.2. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	29%	26	68%	58
Somewhat agree	41%	37	22%	19
Somewhat disagree	13%	12	1%	1
Strongly disagree	1%	1	-	-
Not my area of expertise	16%	15	8%	7
Totals	-	91	-	85

Current:

- I hear that bridge now provides better inspection training - however, the result of this is inconsistent data over time, fewer bridges falling into "good" condition, and this all affects our performance targets and projections.
- In regards to culverts, we provide training to folks doing the inventory yet the job is delegated to lower classification of workers whether student workers or TG/TGS. With the turnover in those ranks and the difficulty hiring I believe we are falling behind in this area.
- Not sure for other assets. For bridges, this is true.
- Some Districts are lacking trained individuals, as a primary result of not providing staff to the effort. This could also be tied to hiring challenges.
- Strongly agree on drainage infrastructure and bridges.
- Training is robust.
- True for High mast towers, but needed for signal systems and lighting.
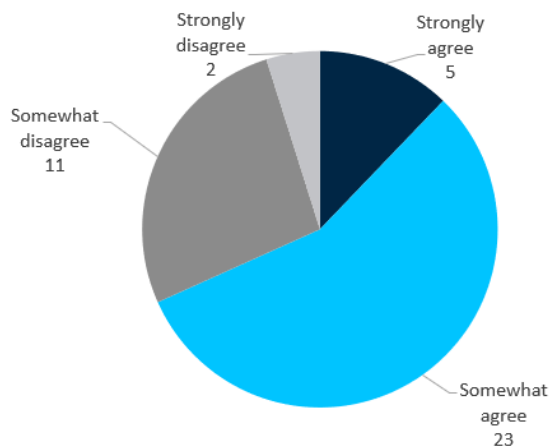
Desired:

- I am not sure what desired means, desired by me or something else?
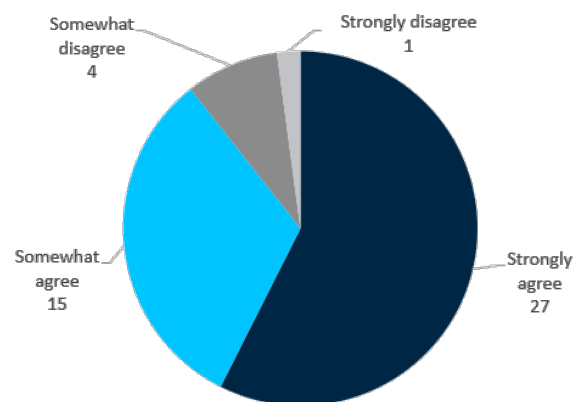- Need to simplify and provide clear job aids.

5.3 Data Governance

5.3.1. A Data Governance Plan with oversight and approval authority for all key data elements has been developed. (Note: Use the definition of key assets from 1.1)

5.3.1. Current

5.3.1. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	6%	5	32%	27
Somewhat agree	26%	23	18%	15
Somewhat disagree	12%	11	5%	4
Strongly disagree	2%	2	1%	1
Not my area of expertise	54%	49	44%	37
Totals	-	90	-	84

Current:
- Confusing what DGP is.
- Does it need to be updated???
- Has been developed but is dated and is need of update to be current.
- I am not aware of this so I am not answering.
- I think we are trying.
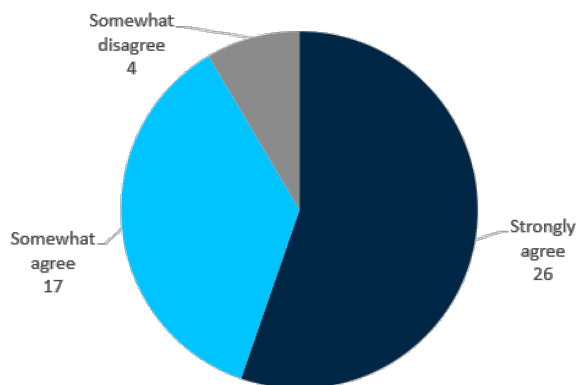- Not that I know of. If there is I doubt it will help get work done and analyze data.

Desired:
- I am not aware of this so I am not answering.
- I am not sure what desired means, desired by me or something else?
- I think it's required.

5.3.2. Committee and individual roles and responsibilities for data governance are working.

5.3.2. Current
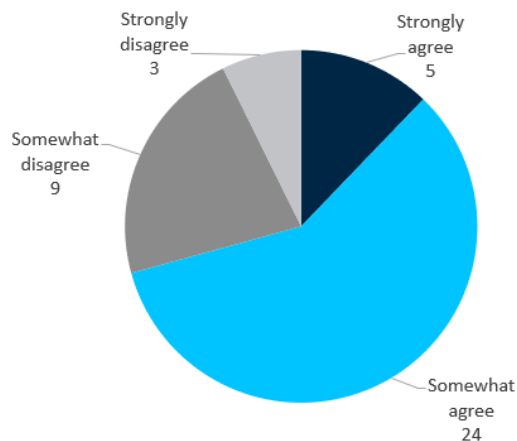
5.3.2. Desired

Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	6%	5	30%	26
Somewhat agree	26%	24	20%	17
Somewhat disagree	10%	9	5%	4
Strongly disagree	3%	3	-	-
Not my area of expertise	54%	49	45%	39
Totals	-	90	-	86

Current:

- Data governance becomes a burden for staff with too many other priority duties.
- Data governance is in need of an organizational review and an update to the strategic plan.
- District GIS Personnel need access to this information so it can be provided for planning and program development.
- I am not aware of this so I am not answering.
- More focus needs to be placed on data collected to support our programming and performance, i.e., the 'business' side of MnDOT.
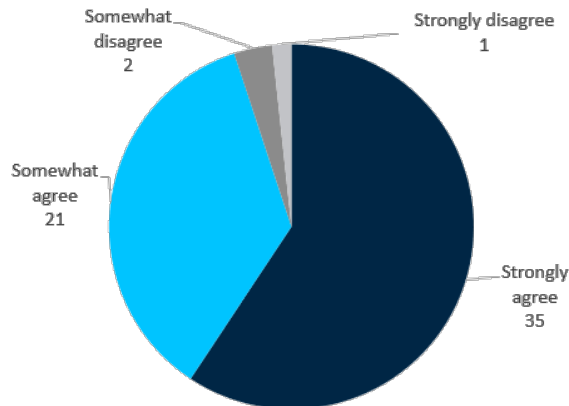- See 5.3.1.

Desired:

- I am not aware of this so I am not answering.
- I am not sure what desired means, desired by me or something else?
- See 5.3.2.

5.3.3. Data definitions, structures, values, and naming conventions have been standardized.

5.3.3. Current
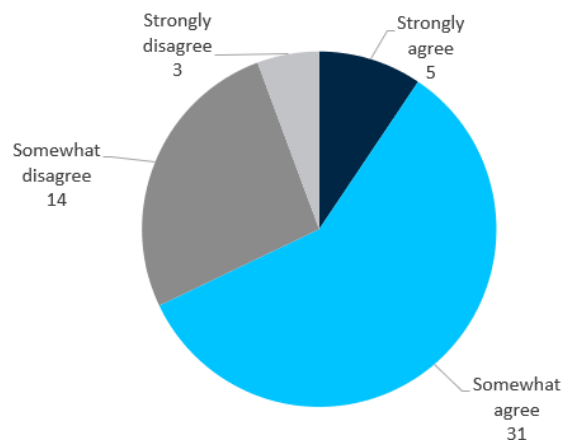
5.3.3. Desired

Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	5%	5	41%	35
Somewhat agree	34%	31	24%	21
Somewhat disagree	15%	14	2%	2
Strongly disagree	3%	3	1%	1
Not my area of expertise	42%	39	31%	27
Totals	-	92	-	86

Current:

- At a high level, and within TAMS.
- For some items this has been done.
- It is hard to keep up and focused on something that doesn't have a clear value to day to day work.
- Not sure for other assets. For bridges, this is true.
- The as-built data is not standardized with plan items. The Hydinfra data is general and old enough that a standardization has been accomplished.
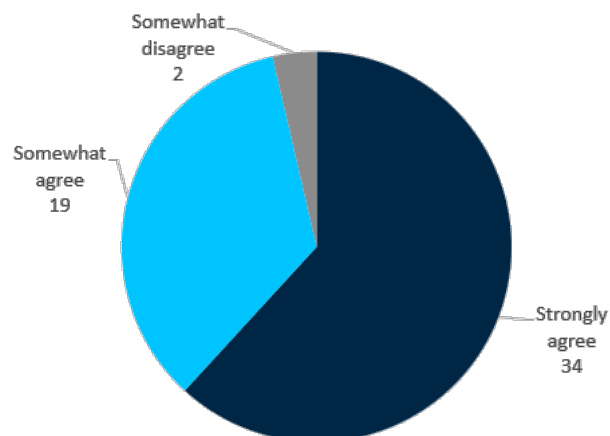
Desired:

- Coupled with a well written and available index for reference.
- I am not sure what desired means, desired by me or something else?
- I'm not sure the ROI is high enough to attempt 100%.
- Need to do better.

5.3.4. Data quality expectations and methods for quality assessment and improvement have been established for all key data elements.

5.3.4. Current
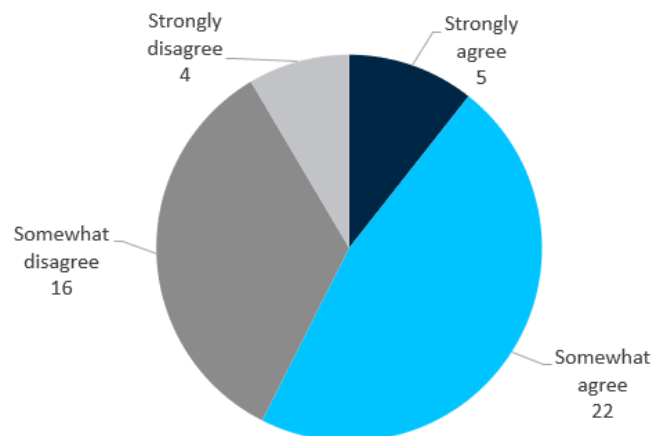
5.3.4. Desired

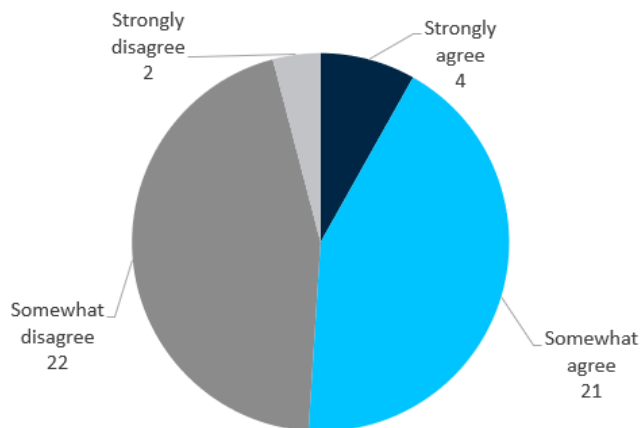| Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	5.	5	39%	34
Somewhat agree	24%	22	22%	19
Somewhat disagree	18%	16	2%	2
Strongly disagree	4%	4	-	-
Not my area of expertise	48%	44	37%	32
Totals	-	91	-	87

Current:
- I think it's pretty good, at least for Key data elements.
- Not sure for other assets. For bridges, and my level of understanding, this is true.
- We have good data for bridges and pavements, but not as good for other assets such as retaining walls and noise walls.
- With the added requirements of the new system I am not sure that all of the new data is even being entered much less checked for quality. For example, we have asked construction in the winter to enter new infrastructure that was installed in the previous summers project to be entered into TAMS. I do not believe this is happening.
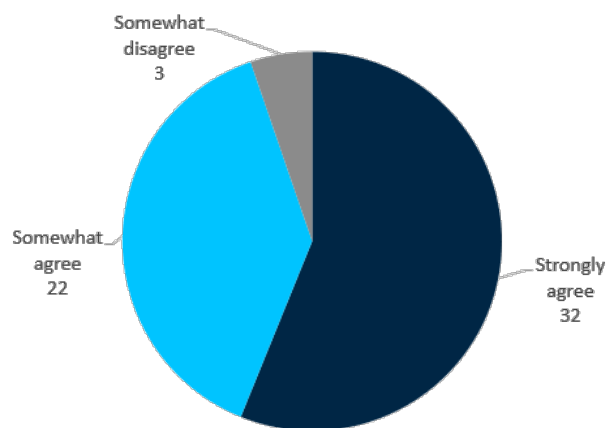
Desired:
- I am not sure what desired means, desired by me or something else?
- Quality expectations for the data, not for the infrastructure.

5.3.5. New data elements and applications that help in minimizing or eliminating redundancy in data collection, storage, and processing are regularly reviewed for increased efficiency and effectiveness.

5.3.5. Current

5.3.5. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	4%	4	37%	32
Somewhat agree	23%	21	25%	22
Somewhat disagree	24%	22	3%	3
Strongly disagree	2%	2	-	-
Not my area of expertise	47%	43	34%	30
Totals	-	92	-	87

Current:

- Data governance, AMPO.
- There's more and more stuff without an improvement in understanding balanced by others trying to delete the useful information in the interest of data retention goals.
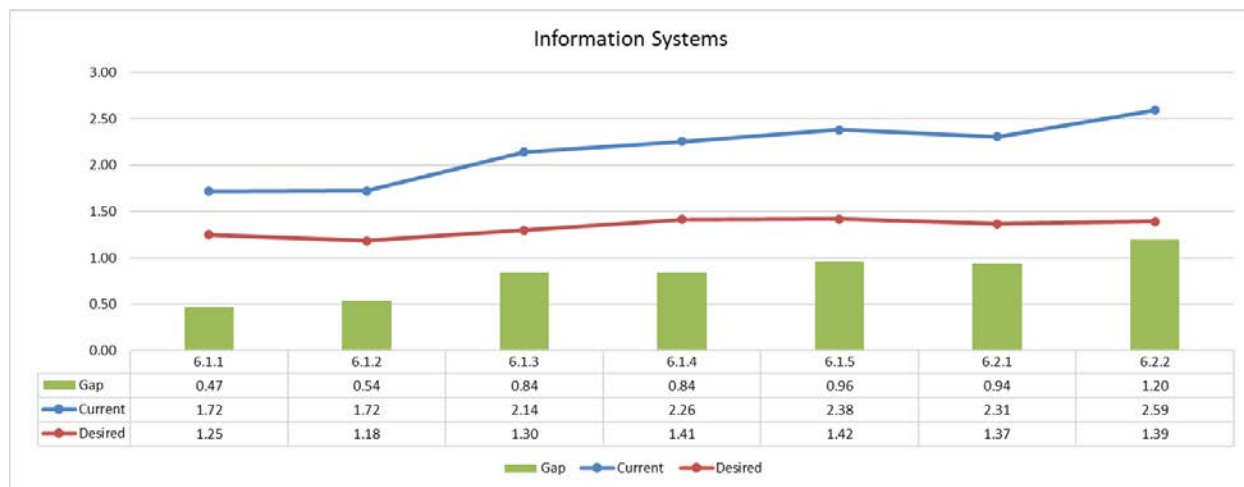- Yes, but much work yet remains.

Desired:

- I am not sure what desired means, desired by me or something else?
- I would think well thought-out systems could help.

6.0 Information Systems

Gap Analysis For All of Section 6.0, Information Systems

There is only one item in this section with a gap greater than 1.0, indicating close alignment between current and desired practices in most areas within this section. Item 6.2.2 explores whether appropriate analysis tools are in place for all assets considered in the Asset Management Plan.

|	6.1.1	6.1.2	6.1.3	6.1.4	6.1.5	6.2.1	6.2.2
Gap	0.47	0.54	0.84	0.84	0.96	0.94	1.20
Current	1.72	1.72	2.14	2.26	2.38	2.31	2.59
Desired	1.25	1.18	1.30	1.41	1.42	1.37	1.39

For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Information Systems group, including:

- 6.1 System Technology and Integration (5 statements).
- 6.2 Decision-Support Tools (2 statements).

6.1 System Technology and Integration

6.1.1. MnDOT's pavement management system is kept current, is integrated to provide consistent information to all stakeholders, is accessible to multiple applications, and provides managers at various organizational levels the information and tools needed for effective asset management.

6.1.1. Current
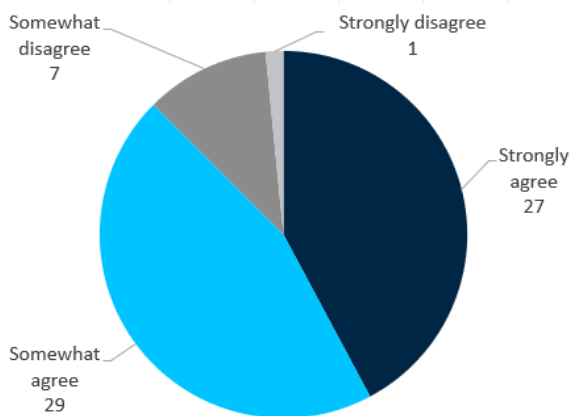
6.1.1. Desired
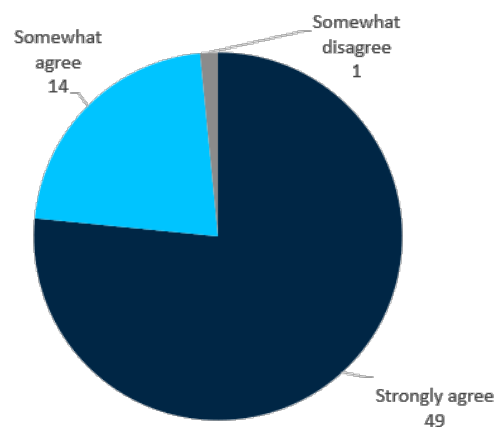
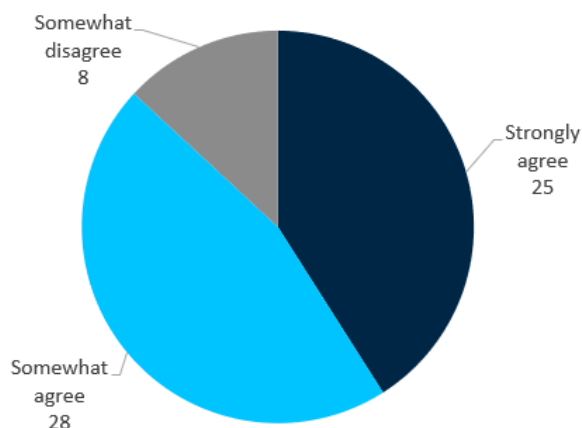| Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	30%	27	57%	49
Somewhat agree	32%	29	16%	14
Somewhat disagree	8%	7	1%	1
Strongly disagree	1%	1	-	-
Not my area of expertise	30%	27	26%	22
Totals	-	91	-	86

Current:

- Access is improving.
- Again access to data by GIS personnel is cumbersome.
- HPMA wasn't built to handle the kinds of integrated planning and coordination we're asking it to support.
- It only measures outside lanes.
- Pavement management system needs better ability to integrate GIS as we are needing to provide data to MPOs.
- Some for segments I do not agree with the forecasted decay curves. I wish the decision tree included more FDR,SFDR and CIR fix's vs so mush of the decision making tree leading to a med mill and overlay.
- The pavement investment guide tools will take it up to the next level.
- There appears to be a lot of data, not much analysis.
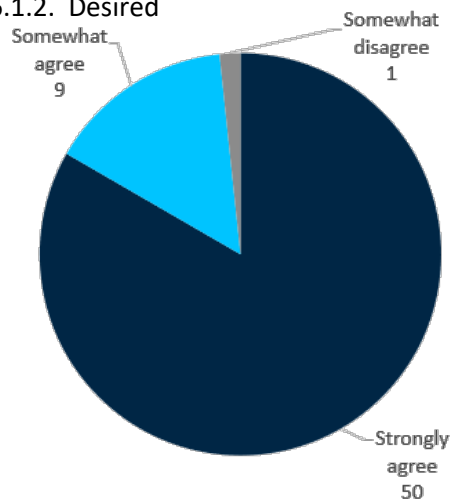
Desired:

- I am not sure what desired means, desired by me or something else?
- Needs to measure more pavement.
- Not sure all levels or even various levels need to analyze or even access the information.

6.1.2. MnDOT's bridge management system is kept current, is integrated to provide consistent information to all stakeholders, is accessible to multiple applications, and provides managers at various organizational levels the information and tools needed for effective asset management.

6.1.2. Current

6.1.2. Desired

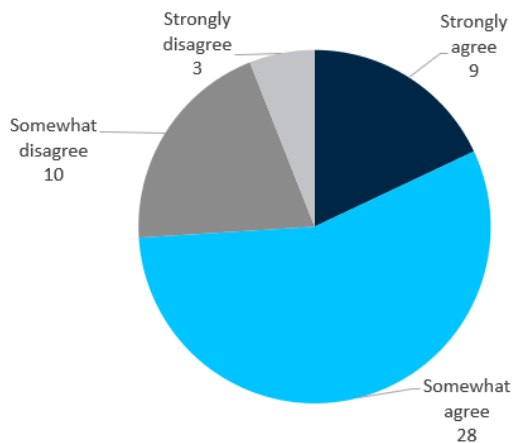| Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	27%	25	58%	50
Somewhat agree	30%	28	10%	9
Somewhat disagree	9%	8	1%	1
Strongly disagree	-	-	-	-
Not my area of expertise	34%	31	30%	26
Totals	-	92	-	86

Current:

- I don't think anyone is managing bridge approach panels.
- I don't think we are integrated as well as possible - several sub systems and manual efforts.
- Not that I am aware of. I attempted to prioritize bridge projects based on a few Pontis element conditions (joint, deck, railing, & approach panel) and sort by geographical area to create good projects and it was really difficult.
- We have an easier time with bridge and GIS due to fewer bridges.
- Yes, but inconsistent data reporting.

Desired:

- I am not sure what desired means, desired by me or something else?
- Jim Stoutland in D8 had a spreadsheet that managed all of the bridge information, was sortable, easy to use, and presented a lot of data in an easily readable format. Complicated is not always better.
- Same as 6.1.1.
- There's always room for improvement.

6.1.3. MnDOT has identified and defined master data entities (e.g., projects, roadway segments, bridges) that are present in multiple business applications and has mapped the data to the systems where the data are used.

6.1.3. Current

6.1.3. Desired
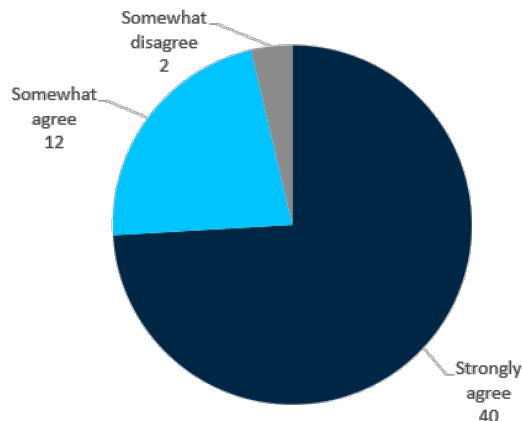
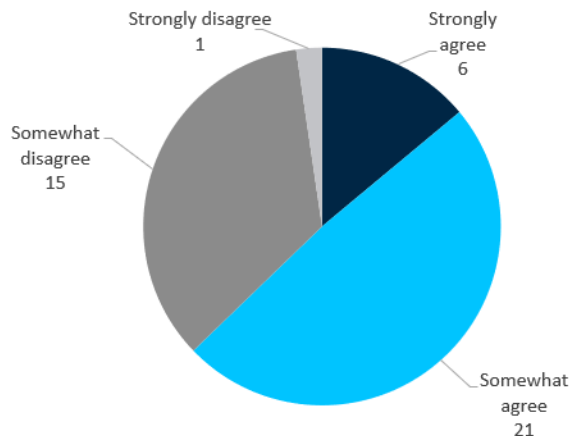| Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	10%	9	46%	40
Somewhat agree	31%	28	14%	12
Somewhat disagree	11%	10	2%	2
Strongly disagree	3%	3	-	-
Not my area of expertise	44%	40	38%	33
Totals	-	90	-	87

Current:
- At least true for TAMS and GeoRilla, I'm not sure about other data entities.
- HPMA currently does not have a mapping tool. The data can be mapped separately though.
- MNDOT still lacks a one stop shop for getting info. GeoRilla is getting better, yet much info is still desired.
- Yes, but not well. You now have 4 or 5 reference point systems, none of which link to stationing, the project lists are many, continually changing, perhaps overlapping, and not available to most users without a big effort.
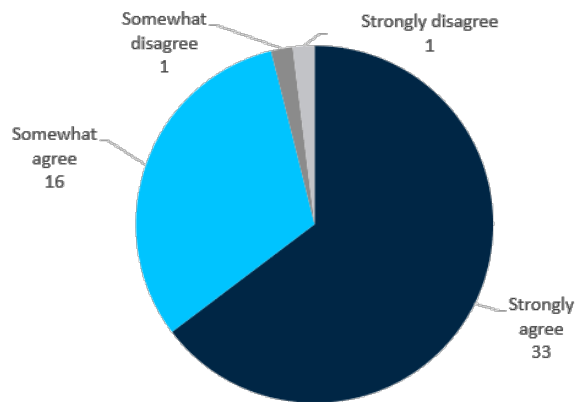
Desired:
- I am not sure what desired means, desired by me or something else?

6.1.4. When new systems are being implemented, the MnDOT's data standards are used to ensure integration of needed information.

6.1.4. Current

6.1.4. Desired

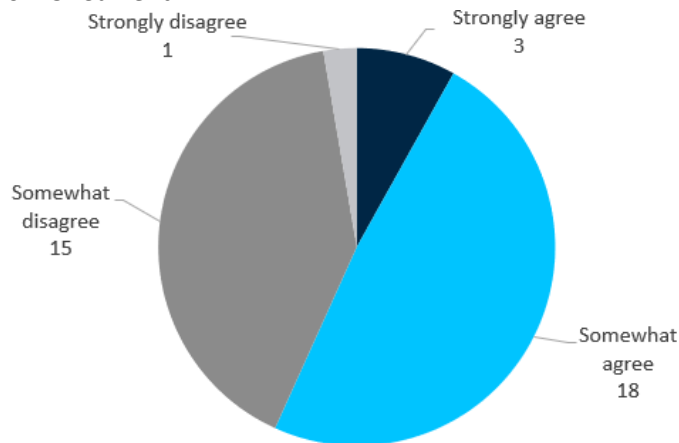|	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	7%	6	39%	33
Somewhat agree	23%	21	19%	16
Somewhat disagree	17%	15	1%	1
Strongly disagree	1%	1	1%	1
Not my area of expertise	52%	47	40%	34
Totals	-	90	-	85

Current:

- I am not sure about the implementation, but from the user end it is a constant treasure hunt to find the information.
- We had Hydinfra pipe numbers for all pipes. Those numbers are used in countless scoping and planning documents, plans, e-mails, reports, and monitoring plans. TAMS had to make up its own new numbers and we had to argue to get the Hydinfra numbers in the database as "External Asset ID" that is not searchable.
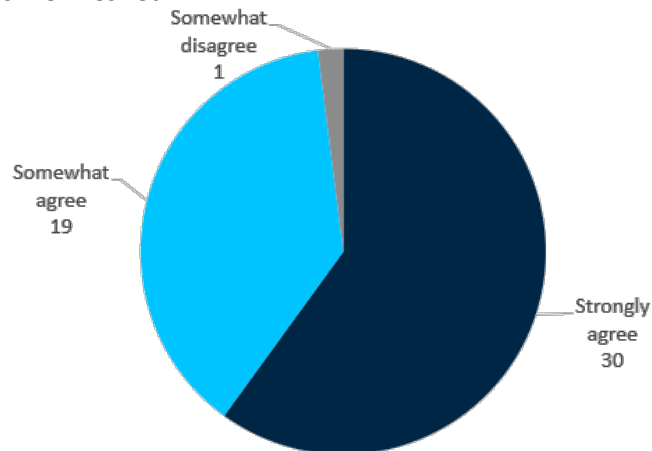- We try through Data Domain stewards and other approaches.

Desired:

- I am not sure what desired means, desired by me or something else?

6.1.5. Procedures are in place to ensure that externally procured data sets and applications adhere to established data standards and can be linked to existing data in an efficient manner.

6.1.5. Current

6.1.5. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	3%	3	35%	30
Somewhat agree	20%	18	22%	19
Somewhat disagree	17%	15	1%	1
Strongly disagree	1%	1	-	-
Not my area of expertise	59%	53	42%	36
Totals	-	90	-	86

Current:

- As-builts received to date are very poor data quality and at risk of degrading existing TAMS data. We are working on the As-Built spec, but lots of work to be done to see if we can get high enough quality data for our needs from a contractor. One alternative would be to have MnDOT staff do this instead (with potentially additional people).
- External data is put on network drives and is mis-used.
- I am not sure about procedures, but from a user end, it is a constant treasure hunt to find the information I need.
- Its clunky to get contractor supplied as-built info into TAMS. We rely on CO or AMPO to do that for us.

Desired:

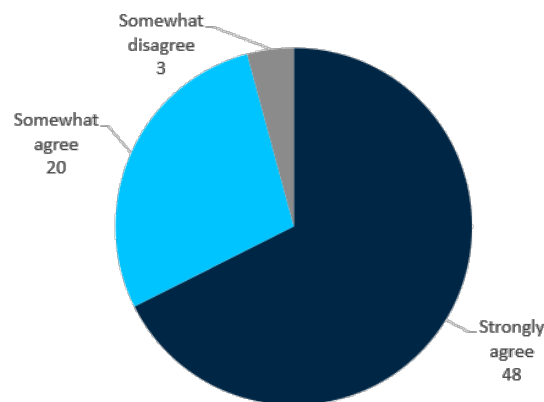- I am not sure what desired means, desired by me or something else?

6.2 Decision-Support Tools

6.2.1. MnDOT's decision-support tools (such as HPMA, BRiM, TAMS, and GEORILLA) facilitate consideration of capital versus maintenance tradeoffs for investment decisions regarding key assets. (Note: Use the definition of key assets from 1.1)

6.2.1. Current
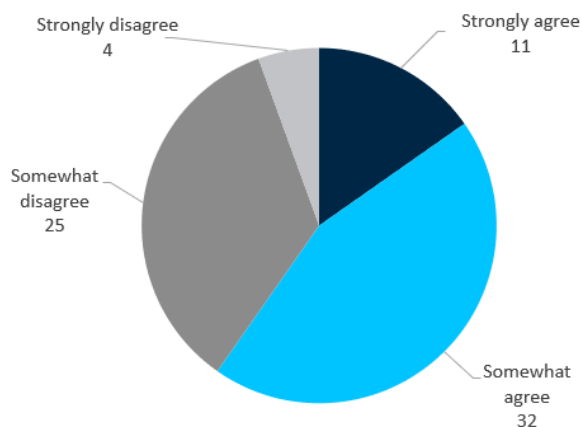
6.2.1. Desired

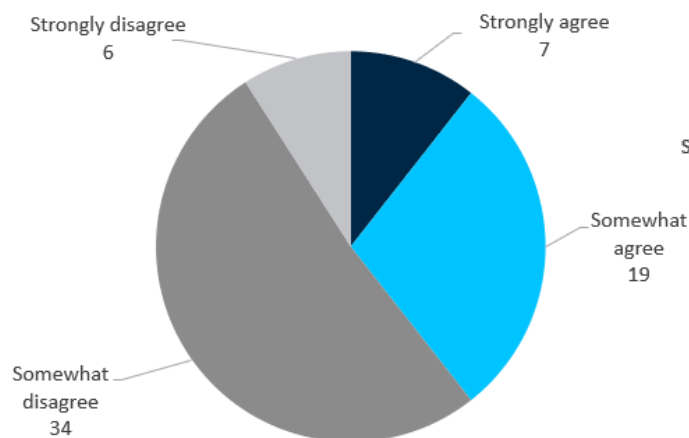|	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	12%	11	56%	48
Somewhat agree	35%	32	24%	20
Somewhat disagree	27%	25	4%	3
Strongly disagree	4%	4	-	-
Not my area of expertise	22%	20	16%	14
Totals	-	92	-	85

Current:
- Don't think so.
- Higher Potential.
- HPMA has some maintenance activities input, but I am unfamiliar with the other having any.
- They do facilitate but many lack modeling of what our decisions today mean for tomorrow.
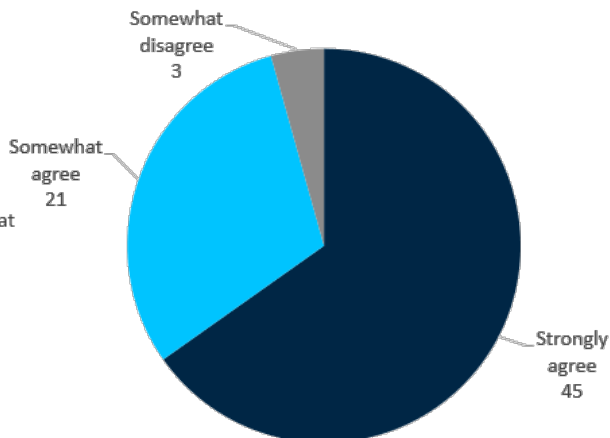
Desired:
- I am not sure what desired means, desired by me or something else?
- Kind of agree, but I'm scared that would just lead to more work on an already filled plate.
- Should.

6.2.2. The appropriate level of analysis tool(s) is/are in place for all assets considered in the Asset Management Plan.

6.2.2. Current   6.2.2. Desired

Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	8%	7	53%	45
Somewhat agree	21%	19	25%	21
Somewhat disagree	37%	34	4%	3
Strongly disagree	7%	6	-	-
Not my area of expertise	28%	26	19%	16
Totals	-	92	-	85

Current:

- More research/data needed on analysis tools for drainage assets.
- Need more people in the districts dedicated to asset management.
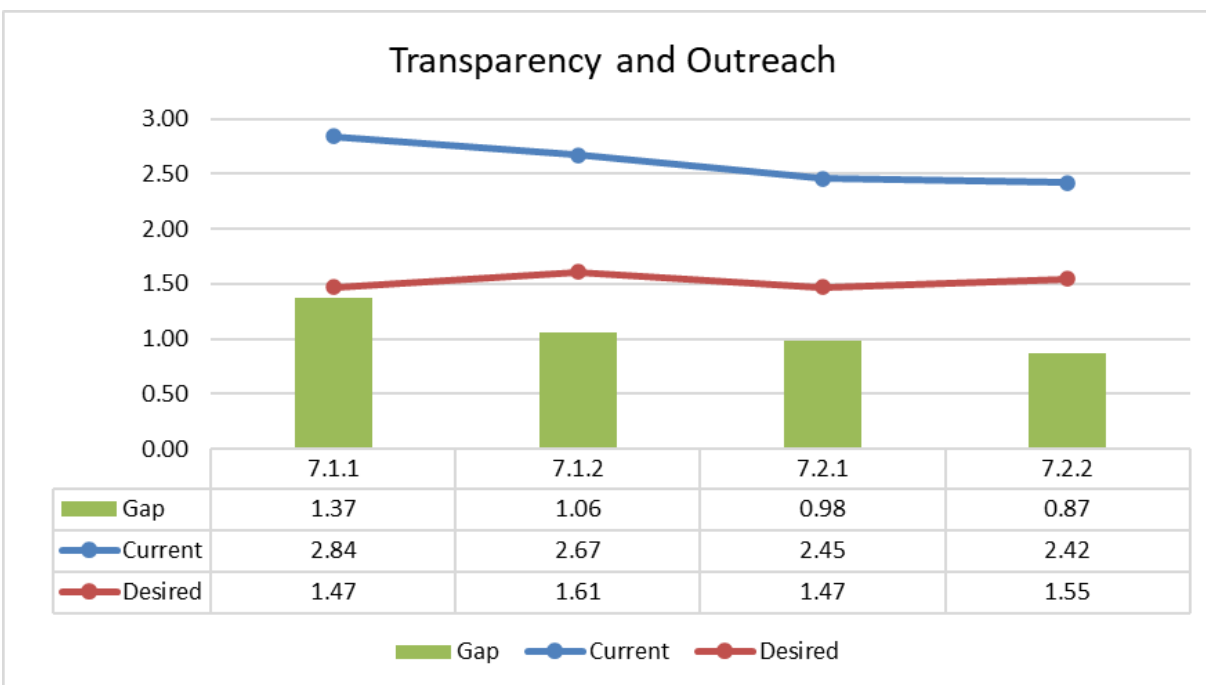- Some assets yes, some sort of, and many no.

Desired:

- CMMS to Work Plans gap.
- Continued build out of TAMS will get us there.
- Depends on the results. For HPMA it seems like whatever the input, the output is a 2" mill and overlay.
- I am not sure what desired means, desired by me or something else?

7.0 Transparency and Outreach

Gap Analysis For All of Section 7.0, Transparency and Outreach

There are two statements with a gap greater than 1.0, both in the Transparency and Accountability section. Item 7.1.1 explores whether investment decisions are based on a clear and transparent process that is understood at all levels of the organization. Item 7.1.2 investigates the degree to which individuals are held accountable for performance at the appropriate level. Item 7.2.1 came close to a gap of 1.0. It assesses whether a communication plan has been established for sharing the Asset Management Plan and performance information.

Transparency and Outreach

|	7.1.1	7.1.2	7.2.1	7.2.2
Gap	1.37	1.06	0.98	0.87
Current	2.84	2.67	2.45	2.42
Desired	1.47	1.61	1.47	1.55

For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Transparency and Outreach group, including:

- 7.1 Transparency and Accountability (2 statements).
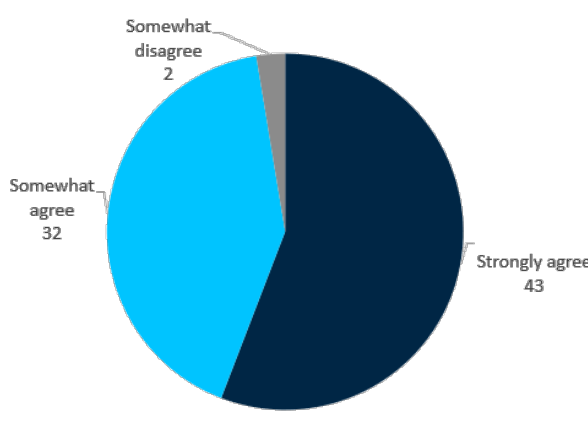- 7.2 Communication and Outreach (2 statements).

7.1 Transparency and Accountability

7.1.1. Investment decisions are based on a clear and transparent process that is understood at all levels of the organization.

7.1.1. Current
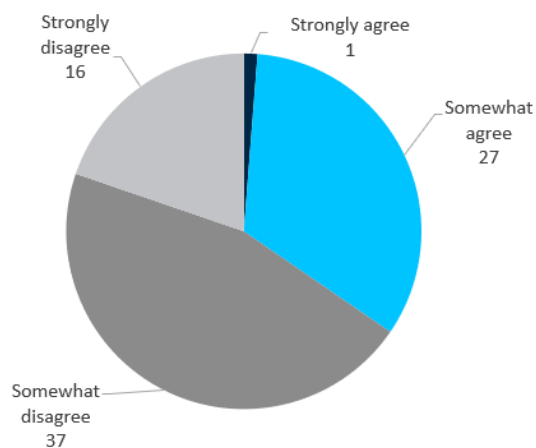
7.1.1. Desired

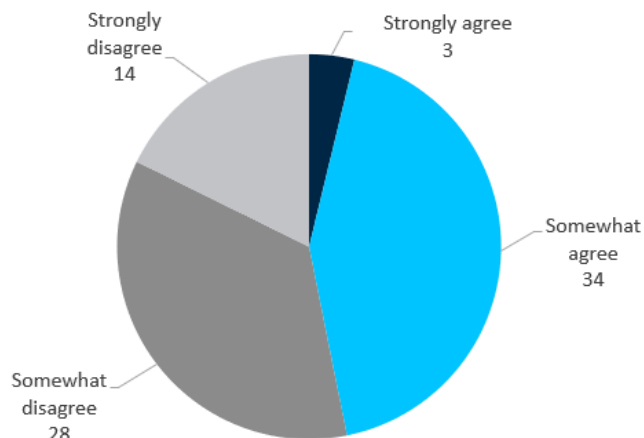| | **Current** | | **Desired** | |
Value	Percent	Count	Percent	Count
Strongly agree	1.%	1	51%	43
Somewhat agree	29%	27	38%	32
Somewhat disagree	40%	37	2%	2
Strongly disagree	17%	16	-	-
Not my area of expertise	13%	12	8%	7
Totals	-	93	--	84

Current:
- Depends on the asset. For our major assets like bridges and pavement I agree. For our less sexy assets, we either do them by directive, when we have time and money, get a complaint, or not at all.
- It is a complicated process and I don't know how clear and transparent the decisions are.
- Not all level... not all locations...
- Not understood on all levels.
- There are numerous considerations that go into scoping projects that develop a program and so it is a challenge to make it understandable to all but I think we do the best we can.
- We are making strides here, but to be understood by all levels of the organization? That is a very heavy lift.
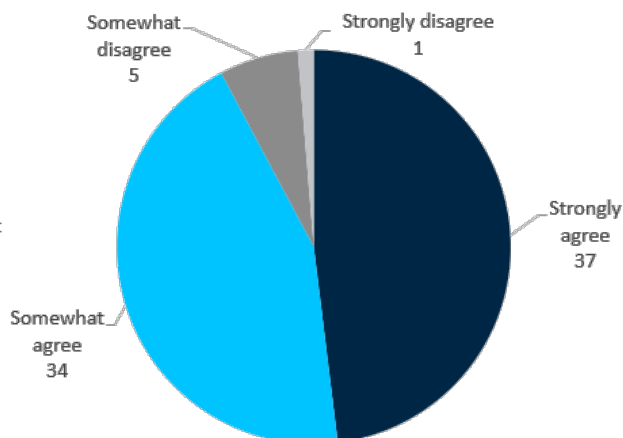
Desired:
- I am not sure what desired means, desired by me or something else?
- Maybe a WIG like need... everyone has some understanding of this.
- This would be good, but not sure what that would take and if it is necessary to have all levels understand why investment decisions are made.

7.1.2. Individuals within the organization are held accountable for performance at the appropriate level.

7.1.2. Current

7.1.2. Desired

Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	3%	3	43%	37
Somewhat agree	37%	34	39%	34
Somewhat disagree	30%	28	6%	5
Strongly disagree	15%	14	1%	1
Not my area of expertise	15%	14	11%	10
Totals	-	93	-	87

Current:

- I think the functional group managers are held responsible and do strive to hit asset management objectives. However, the big decisions are often due to political or public pressures. For example, how were districts developing corridors of commerce projects for routes that do not bc at 1 when models show there is a short fall of funding for preserving what we have. How is it that passing lanes and turn lanes are added to our projects were warrants are not met?
- System performance? we don't know how to integrate system performance with performance management.
- The department allows substantial variation from known best practices.
- What does this have to do with asset management?

Desired:

- Answer based on asset management, but goes well beyond that.
- As long as understanding of why something was not met is also considered. If the funding is not their then you can't meet the standard for example.
- Hmmmm? maybe management styles/decisions are different for sure.
- I am not sure what desired means, desired by me or something else?
- We can leave room for local variations.
- We can make good decisions with the funds we have and still fall short of performance targets if the funding is inadequate.

- We should not hold individuals accountable for performance measures. If assets are not performing at expected levels due to negligence of a certain individual, we have tools in place to hold those folks accountable.
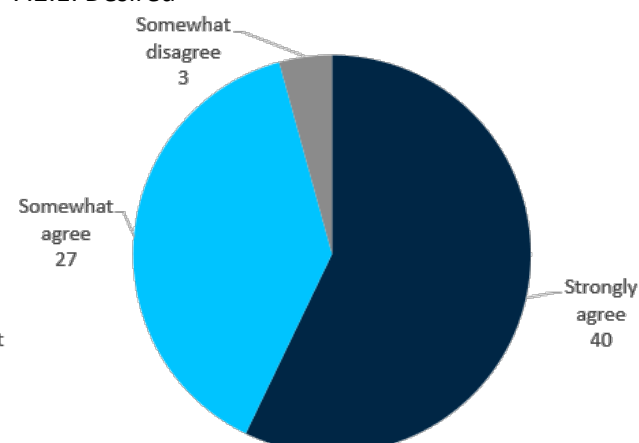
7.2 Communication and Outreach

7.2.1. A communication plan for sharing Asset Management Plans and performance within MnDOT has been established.

7.2.1. Current
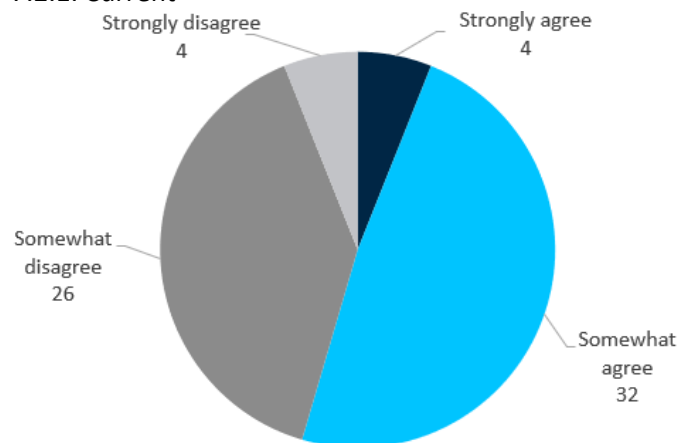
7.2.1. Desired

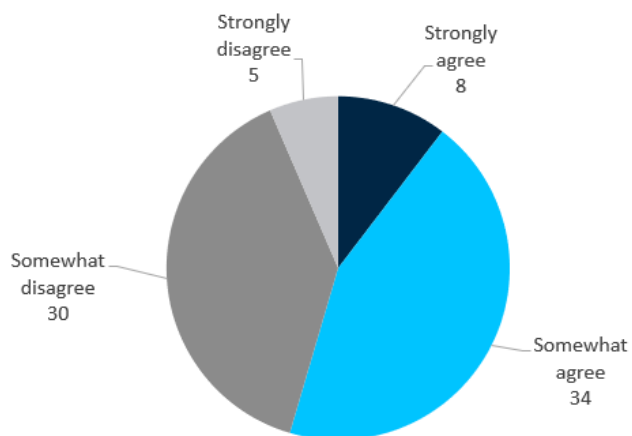| Value	Current		Desired	
	Percent	**Count**	**Percent**	**Count**
Strongly agree	4%	4	47%	40
Somewhat agree	35%	32	31%	27
Somewhat disagree	28%	26	3%	3
Strongly disagree	4%	4	-	-
Not my area of expertise	28%	26	19%	16
Totals	-	92	-	86

Current:

- I am not aware of any communication plan.
- It seems like I would know if this has been established, but I don't.
- Not that I remember.

Desired:

- Being able to look at and correlate planning with results would be valuable, but a communication plan?!?
- I am not sure what desired means, desired by me or something else?
- This can be an outcome of the strategic planning process - responding to discovered gaps.

7.2.2. MnDOT's performance metrics are provided both internally and externally on a regular basis using appropriate methods for communicating the information.

7.2.2. Current

7.2.2. Desired
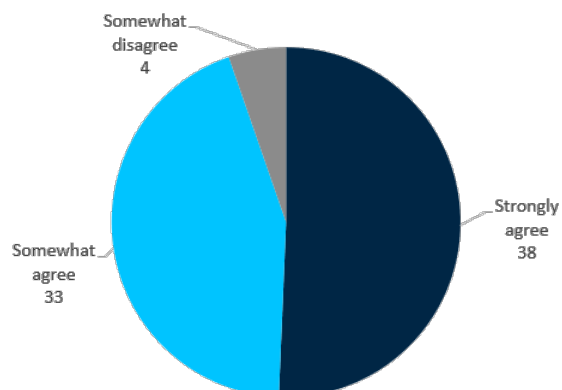
	Current		Desired	
Value	Percent	Count	Percent	Count
Strongly agree	9%	8	44%	38
Somewhat agree	37%	34	38%	33
Somewhat disagree	32%	30	5%	4
Strongly disagree	5%	5	-	-
Not my area of expertise	17%	16	13%	11
Totals	-	93	-	86

Current:

- Depends on the asset.
- Nope, haven't seen the dashboards for years. Maybe this is out there, but who has time?
- Online dashboard that is updated regularly.
- Still need to get the website updated more frequently without needing SLT/ELT to approve every update.
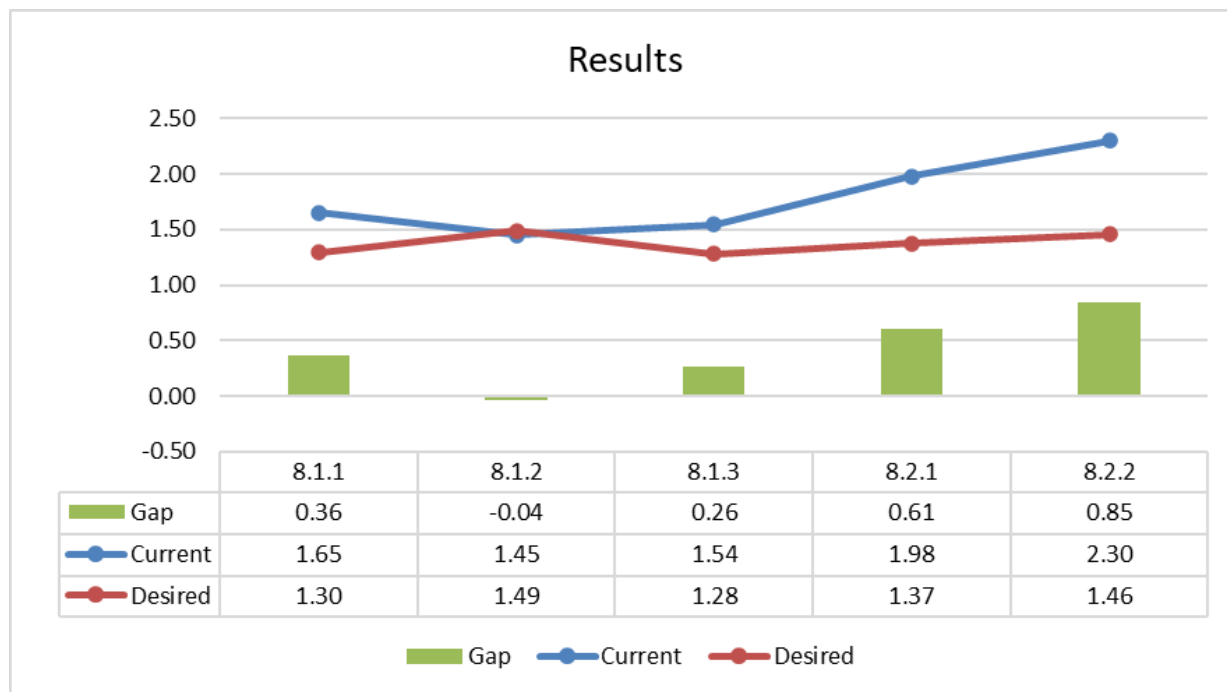
Desired:

- I am not sure what desired means, desired by me or something else?
- Not sure what that looks like or if it necessary to share on a regular basis outside the agency.

8.0 Results

Gap Analysis For All of Section 8.0, Results

None of the areas within this section have a gap greater than 1.0, indicating relatively close alignment between current and desired practices. Perhaps most interesting in this section is that survey participants indicated that the Asset Management Plan exceeds desired expectations (item 8.1.1).

|	8.1.1	8.1.2	8.1.3	8.2.1	8.2.2
Gap	0.36	-0.04	0.26	0.61	0.85
Current	1.65	1.45	1.54	1.98	2.30
Desired	1.30	1.49	1.28	1.37	1.46

For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Results group, including:

- 8.1 Compliance (3 statements).
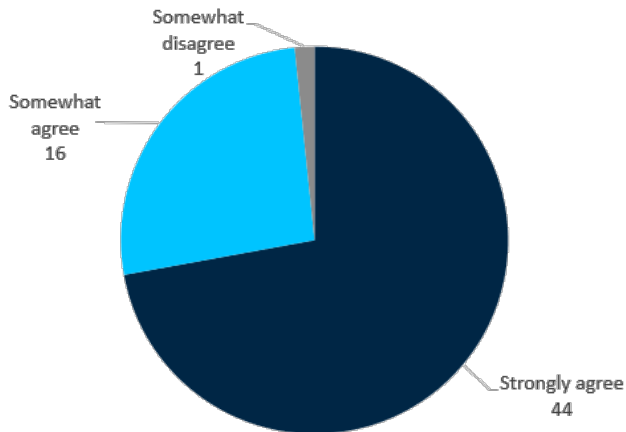- 8.2 Consistency Determination (2 statements).

8.1 Compliance

8.1.1. Federal and state legislation requirements are addressed in the MnDOT's Asset Management Plan and programs.

8.1.1. Current   8.1.1. Desired
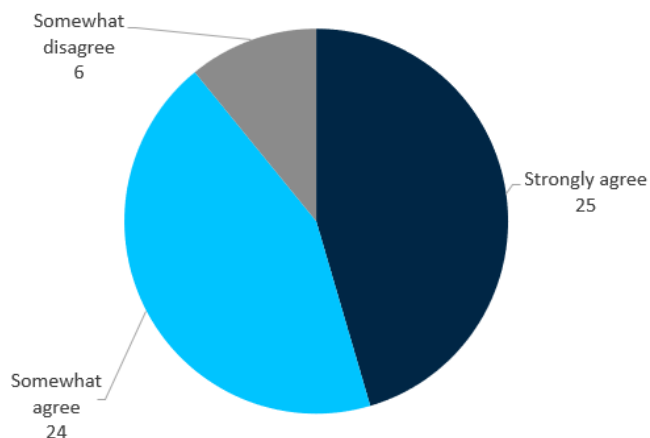
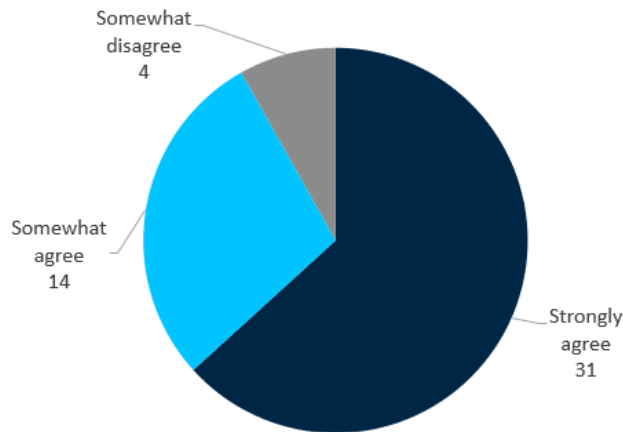|	Current		Desired	
Value	Percent	Count	Percent	Count
Strongly agree	27%	25	51%	44
Somewhat agree	26%	24	19%	16
Somewhat disagree	7%	6	1%	1
Strongly disagree	-	-	-	-
Not my area of expertise	40%	37	29%	25
Totals	-	92	-	86

Current:
- Geotechnical Assets are a work in process.
- Not sure for other assets, true mostly for bridges.
- Pretty sure those that are needed/required.
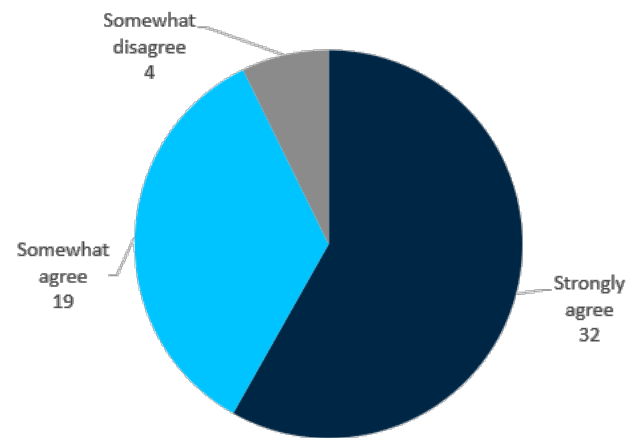- Requirements about what?

Desired:
- I am not sure what desired means, desired by me or something else?
- Perhaps, if you haven watched the sausage being made you don't know what ingredients and tools are needed.
- Spell out link to code.

8.1.2. The scope of the Asset Management Plan exceeds the requirements outlined in federal legislation.

8.1.2. Current

8.1.2. Desired

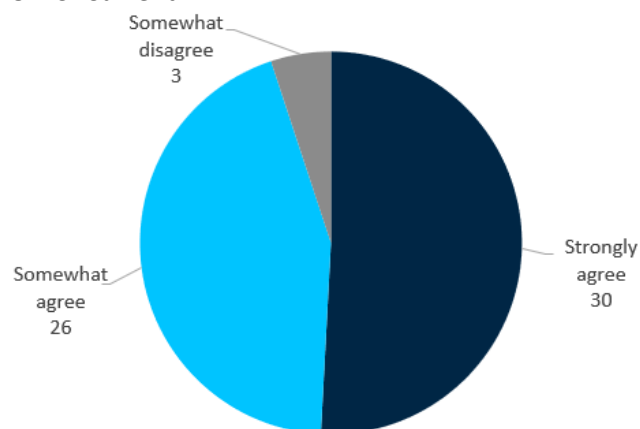|	**Current**		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	34%	31	38%	32
Somewhat agree	15%	14	22%	19
Somewhat disagree	4%	4	5%	4
Strongly disagree	-	-	-	-
Not my area of expertise	47%	43	35%	30
Totals	-	92	-	85

Current:

- This is a good thing. The plan should support our needs and not only be responsive to the federal legislation.
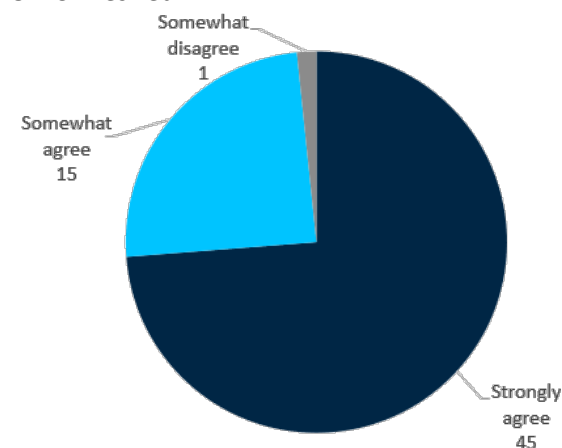
Desired:

- Could argue both sides of this one.
- I am not sure what desired means, desired by me or something else?
- I think MnDOT should do what works best for them.
- I would be more concerned with making it usable for the staff needing it.

8.1.3. MnDOT is making acceptable progress towards its federally required performance targets.

8.1.3. Current

8.1.3. Desired

	Current		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	33%	30	52%	45
Somewhat agree	28%	26	17%	15
Somewhat disagree	3%	3	1%	1
Strongly disagree	-	-	-	-
Not my area of expertise	36%	33	29%	25
Totals	-	92	-	86

Current:

- Might have a bit of an issue with the bridge targets given new inspection requirements.
- Roll out of new TAMS modules should be done with more testing including by district staff while the old system is still active to make sure errors are hammered out.
- The phrasing of this question perpetuates the misunderstanding about what federal performance targets are for assets. They are our 2 and 4 year expected outcomes, so we expect to meet them/make progress toward them since the investments are programmed.
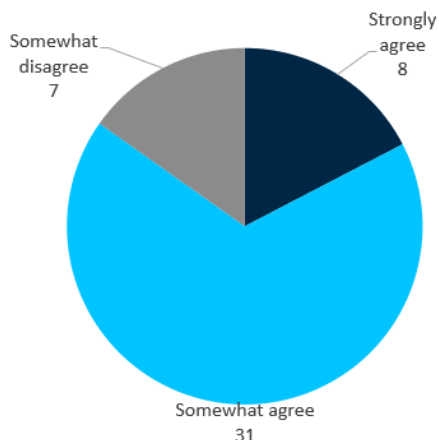
Desired:

- Focus on preservation is hard but would be required when funding is constrained.
- I am not sure what desired means, desired by me or something else?
- Is just showing funding gap enough?

8.2 Consistency Determination

8.2.1. MnDOT is easily able to satisfy the requirements associated with the federal consistency determination for reporting expenditures on National Highway System pavements and bridges (in other words, programming and project design decisions are carried out consistently with the Asset Management Plan and MnSHIP direction).

8.2.1. Current

8.2.1. Desired
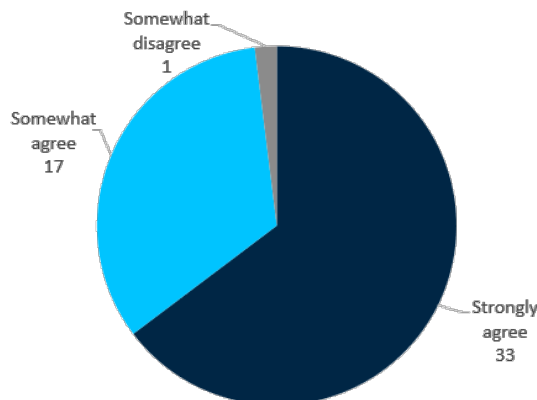
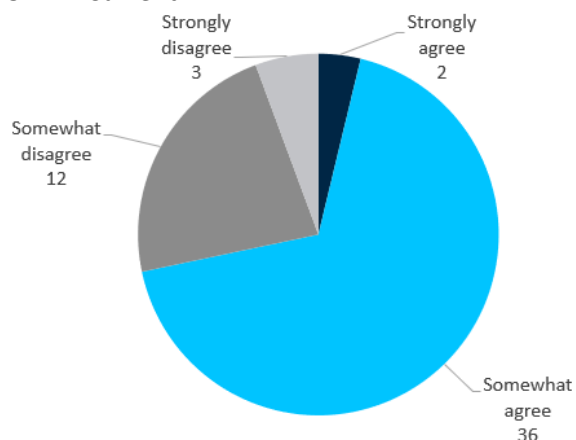|	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	9%	8	38%	33
Somewhat agree	34%	31	20%	17
Somewhat disagree	8%	7	1%	1
Strongly disagree	-	-	-	-
Not my area of expertise	50%	46	41%	35
Totals	-	92	-	86

Current:

- Decisions have been made recently that are not consistent with this direction, but political pressure is a reality.
- I say yes to MnSHIP, not sure about Asset Management Plan.
- Maybe not easily but we are doing it.
- So far, yes, but 2021 isn't looking good.
- The current method suggested by USDOT/FHWA is inadequate and answers the wrong questions.
- This year we are...future years don't look quite as promising.
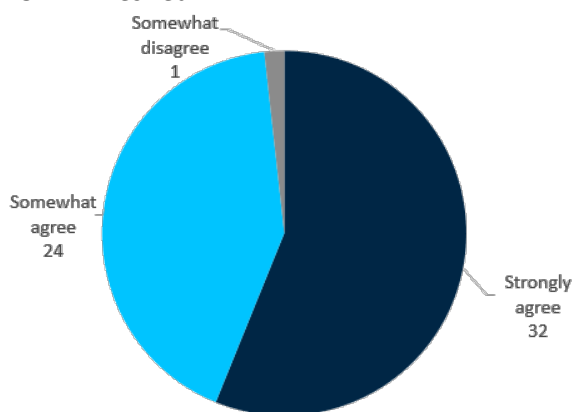
Desired:

- Condition change at different paces and it is hard to determine 10-20 years out which asset will deteriorate first.
- I am not sure what desired means, desired by me or something else?

8.2.2. Processes are in place to support the implementation of the investment strategies outlined in the Asset Management Plan.

8.2.2. Current

8.2.2. Desired

	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	2%	2	38%	32
Somewhat agree	39%	36	28%	24
Somewhat disagree	13%	12	1%	1
Strongly disagree	3%	3	-	-
Not my area of expertise	42%	39	33%	28
Totals	-	92	-	85

Current:

- I cannot comment on the processes, however, from a asset manager standpoint I do not see a formal process. I see goals being set but not acknowledgement that it will take resources to get there.
- MnSHIP, maintenance performance measures.
- This is not super clear to me.
- We need to strengthen this tie within our agency.

Desired:

- I always wanted a way to model investments to see the outcomes of various planning choices. Nothing that takes a genius to run. Something easy to try various options on and save, comparing with other district projects.
- I am not sure what desired means, desired by me or something else?

9.0 Workforce Capacity and Development

Gap Analysis For All of Section 9.0, Workforce Capacity and Development

This section of the survey identified three areas with gaps greater than 1.0. The largest of the three gaps is item 9.1.3, which assesses whether mechanisms are in place to minimize risks associated with the loss of key staff knowledge in asset management. Item 9.1.1 assessed the degree to which asset management roles and responsibilities are clearly defined and documented. The smallest of the three gaps was item 9.2.1, which explores whether core competencies for asset management implementation have been defined and training is in place to acquire the skills needed.
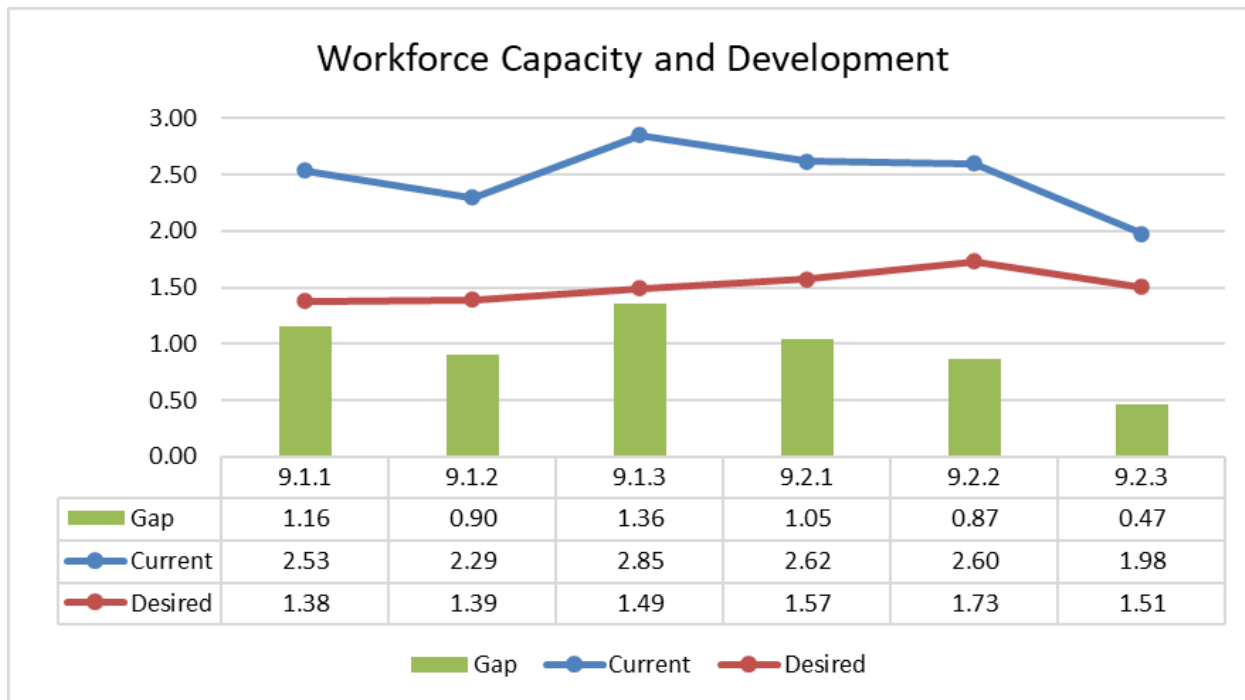

For each of the statements included in the survey, more detailed information is provided in the following pages. Results are organized by subcategories within the Workforce Capacity and Development group, including:

- 9.1 Workforce Capacity (3 statements).
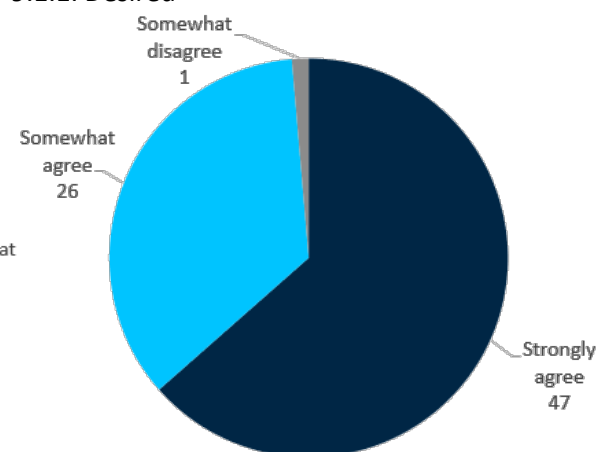- 9.2 Workforce Development (3 statements).

9.1 Workforce Capacity

9.1.1. Asset management roles and responsibilities are clearly defined and documented.

9.1.1. Current
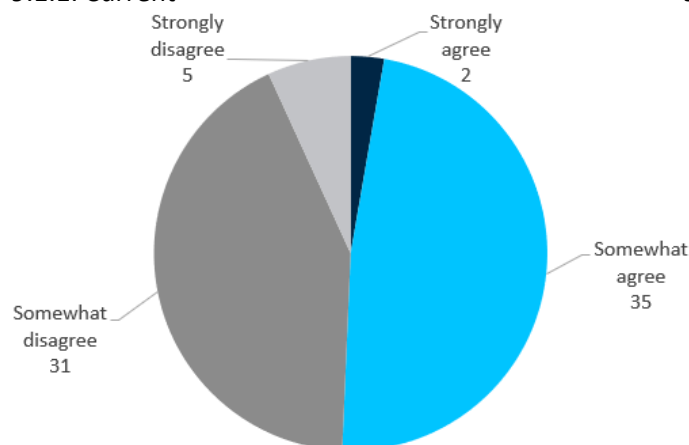
9.1.1. Desired

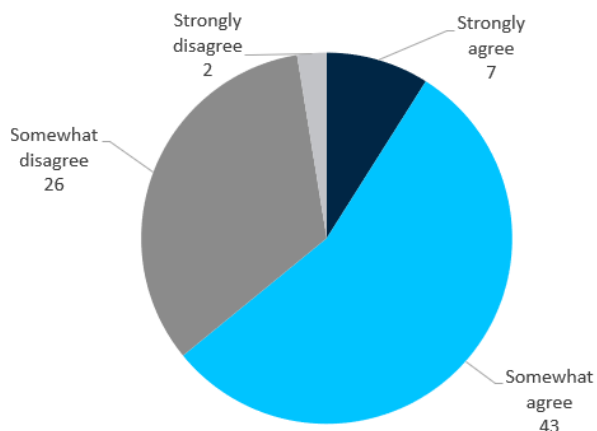|	Current		Desired	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	2%	2	55%	47
Somewhat agree	38%	35	31%	26
Somewhat disagree	34%	31	1%	1
Strongly disagree	5%	5	-	-
Not my area of expertise	20%	18	13%	11
Totals	-	91	-	85

Current:

- For the assets being collected over a long time frame, roles and responsibilities are clearly defined, except for how to use the new TAMS. For as-builts, I do not know that our district has done any successful data collection. Yes, contractors and consultants have been paid, but I do not believe any of the data has been useful or able to have been loaded into TAMS.
- I am for the most part a user of the data. There is an "as-built" side that wants project delivery staff to verify that the as-built data is data. I have several Hydraulic staff, each working on numerous projects and they are far better suited to review the project data, but apparently that cannot be done. All of the staff and the various projects are listed in a project management spreadsheet by project, so its not impossible to find who they are.
- Making progress, but not there.
- Not sure the districts fully know their role.
- Probably the case for current items, yet to be completed for new asset classes.

Desired:

- I am not sure what desired means, desired by me or something else?
- Perhaps, but again, who is going to have the time? This will not compete well with keeping the STIP projects on schedule or the other tasks.

9.1.2. Employees have the appropriate skills and training needed for the roles and responsibilities assigned to them.

9.1.2. Current

9.1.2. Desired
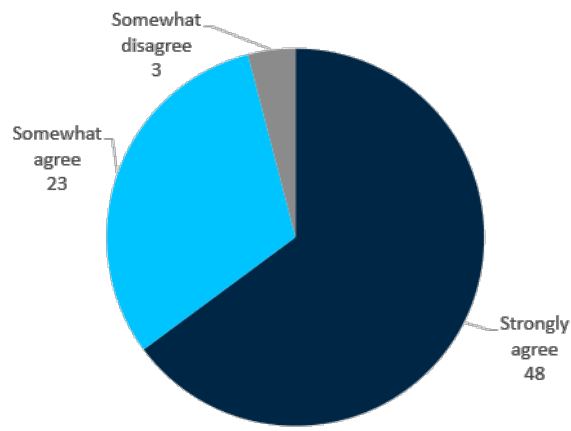
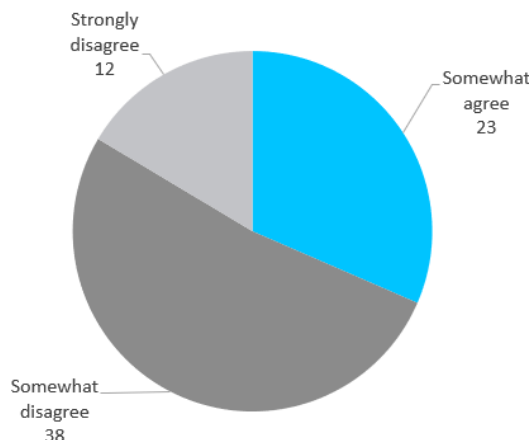|	**Current**		**Desired**	
Value	**Percent**	**Count**	**Percent**	**Count**
Strongly agree	7.6%	7	58.3%	48
Somewhat agree	47.8%	43	27.4%	23
Somewhat disagree	28.3%	26	3.6%	3
Strongly disagree	2.2%	2	-	-
Not my area of expertise	14.1%	13	10.7%	9
Totals	-	91	-	83

Current:

- Computer and other data collection instruments are difficult for many maintenance TG level folks.
- Need training and equipment (tablets).
- Not sure of if the assignment of responsibilities is there.
- The employees know the subject. Usually its the tools and software that is inappropriate.
- The new equipment and GIS support are near non existent in our district.
- Unknown.
- We have invested in training and have done a great job in ensuring that much of our department has been trained.
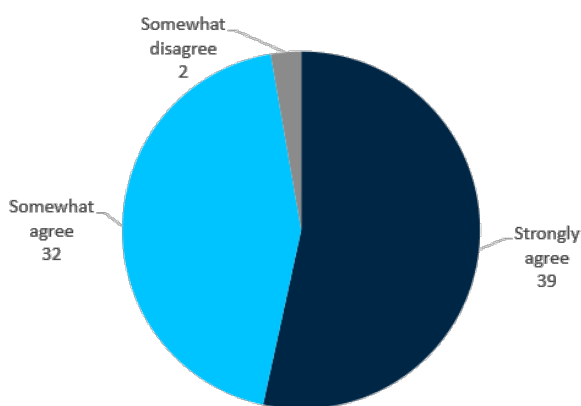
Desired:

- I am not sure what desired means, desired by me or something else?

9.1.3. Mechanisms are in place to minimize risks related to the loss of key staff knowledge in asset management.

9.1.3. Current

9.1.3. Desired

Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	0	0	46%	39
Somewhat agree	26%	23	38%	32
Somewhat disagree	42%	38	2%	2
Strongly disagree	13%	12	-	-
Not my area of expertise	19%	17	14%	12
Totals	-	90	-	85

Current:
- Definitely need some succession planning throughout the agency.
- Generally, MnDOT does not seem to have a good program for succession planning or workforce cross training and redundancy.
- Maybe at current AM level... not sure of future level?
- Sometimes.
- The only way I can get information out of TAMS is by calling Bonnie, what am I going to do when she retires?
- This is a problem with all key staff.
- This is normally budget driven. Sometimes tough for Districts to double-fill to ensure knowledge transfer.

Desired:
- Equity is tough given the current labor market. MNDOT pay is not keeping with the industry. We lose people all the time to the private industry.
- I am not sure what desired means, desired by me or something else?
- I couldn't find a spot to put an overall comment, so I'm putting it here. This was a terribly designed survey. It was way too long, many of the questions appeared repetitive in nature, and you asked many people to answer questions well beyond their expertise. And I'm a person who usually likes taking surveys. When you ask too many questions, responders just start clicking answers without a lot of thought, especially the subjects

where they don't have great expertise. Good luck with your analysis, because I wouldn't trust the responses.

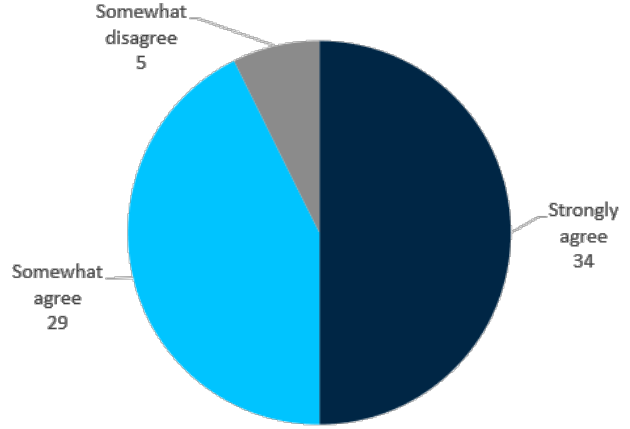- Quickly get expert's knowledge into GIS for preservation.

9.2 Workforce Development

9.2.1. Core competencies required for the successful implementation of asset management have been defined and training programs are in place for employees to acquire these competencies.
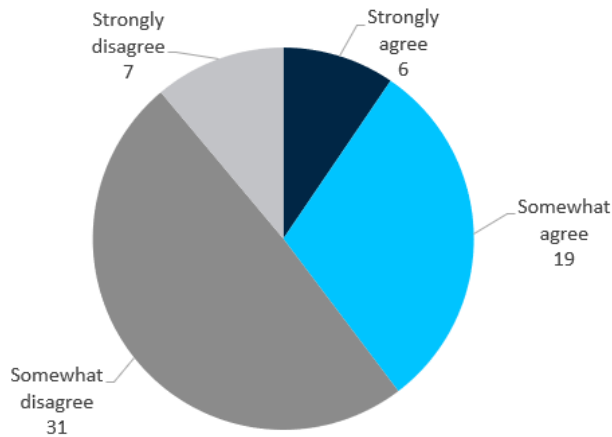
9.2.1. Current   9.2.1. Desired

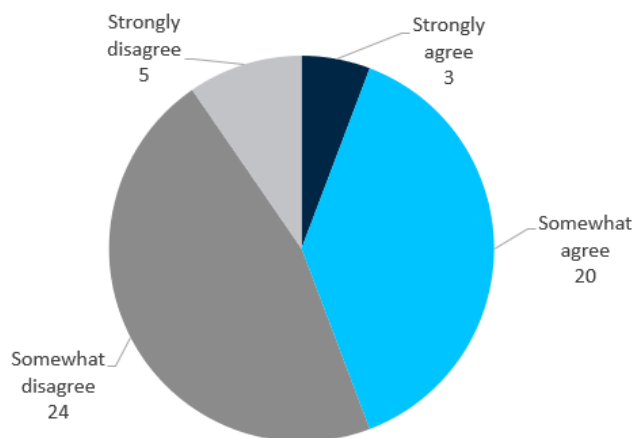| Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	7.7%	6	41.2%	34
Somewhat agree	20.9%	19	34.1%	29
Somewhat disagree	34.1%	31	5.9%	5
Strongly disagree	7.7%	7	-	-
Not my area of expertise	29.7%	27	18.8%	16
Totals	-	90	-	84

Current:

- Front line people in the districts don't have these competencies.
- There has been training, but where is the manuals?
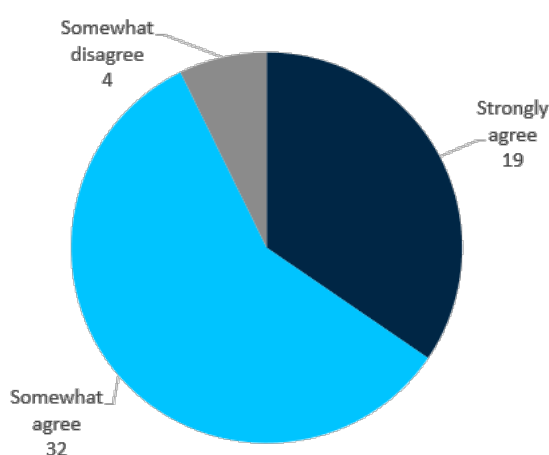- Unsure of meaning.

Desired:

- I am not sure what desired means, desired by me or something else?

9.2.2. Asset management capacity building opportunities exist and are encouraged for staff who are outside asset-focused organizational units.

9.2.2. Current

9.2.2. Desired

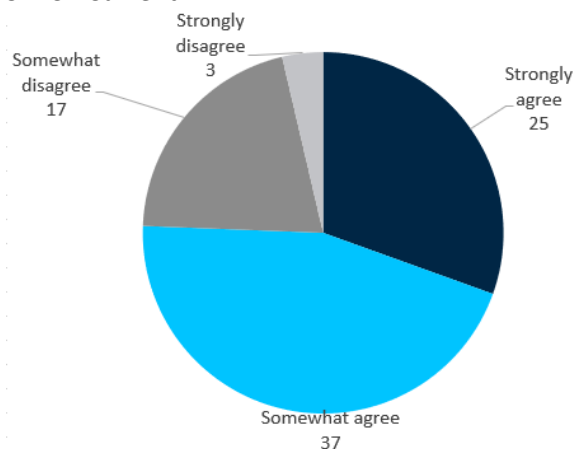|	Current		Desired	
Value	Percent	Count	Percent	Count
Strongly agree	3%	3	24%	19
Somewhat agree	22%	20	40%	32
Somewhat disagree	27%	24	5%	4
Strongly disagree	6%	5	-	-
Not my area of expertise	42%	37	31%	25
Totals	-	89	-	80

Current:

- Capacity building - are you saying personnel?
- In the districts or CO or both?
- What des this even mean?

Desired:

- COVID19 active opportunities starting connection.
- I am not sure what desired means, desired by me or something else?

9.2.3. MnDOT encourages a learning culture by periodically organizing seminars on asset management, and/or participating in conferences, peer exchanges, webinars, and other forms of knowledge transfer.

9.2.3. Current

9.2.3. Desired
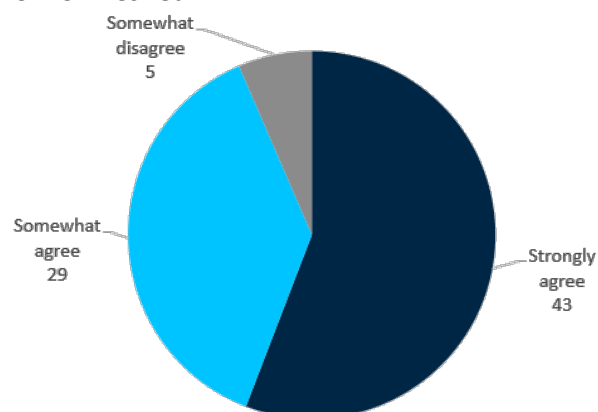
Value	Current		Desired	
	Percent	Count	Percent	Count
Strongly agree	28%	25	52%	43
Somewhat agree	41%	37	35%	29
Somewhat disagree	19%	17	6%	5
Strongly disagree	3%	3	-	-
Not my area of expertise	9%	8	7%	6
Totals	-	90	-	83

Current:
- I wish we could focus more on well, anything. So much training that I have to go to gets in the way of training I want to go to.
- MnDOT does encourage learning though its hard to reach maintenance field staff due to current job demands - but those are the folks that are expected to collect and enter data or be back ups to those that are collecting/entering data.
- There have been training opportunities.
- These opportunities are not widely capitalized on.
- We can probably do more to organize internal seminars/webinars or find a way to engage many other users within the dept.

Desired:
- I am not sure what desired means, desired by me or something else?
- Just kidding.
- Since we are ahead of other states we are heavily involved in knowledge transfer and sometimes it is too much for staff workload.
- This should be a support tool we use reliably and should be adequately supported.