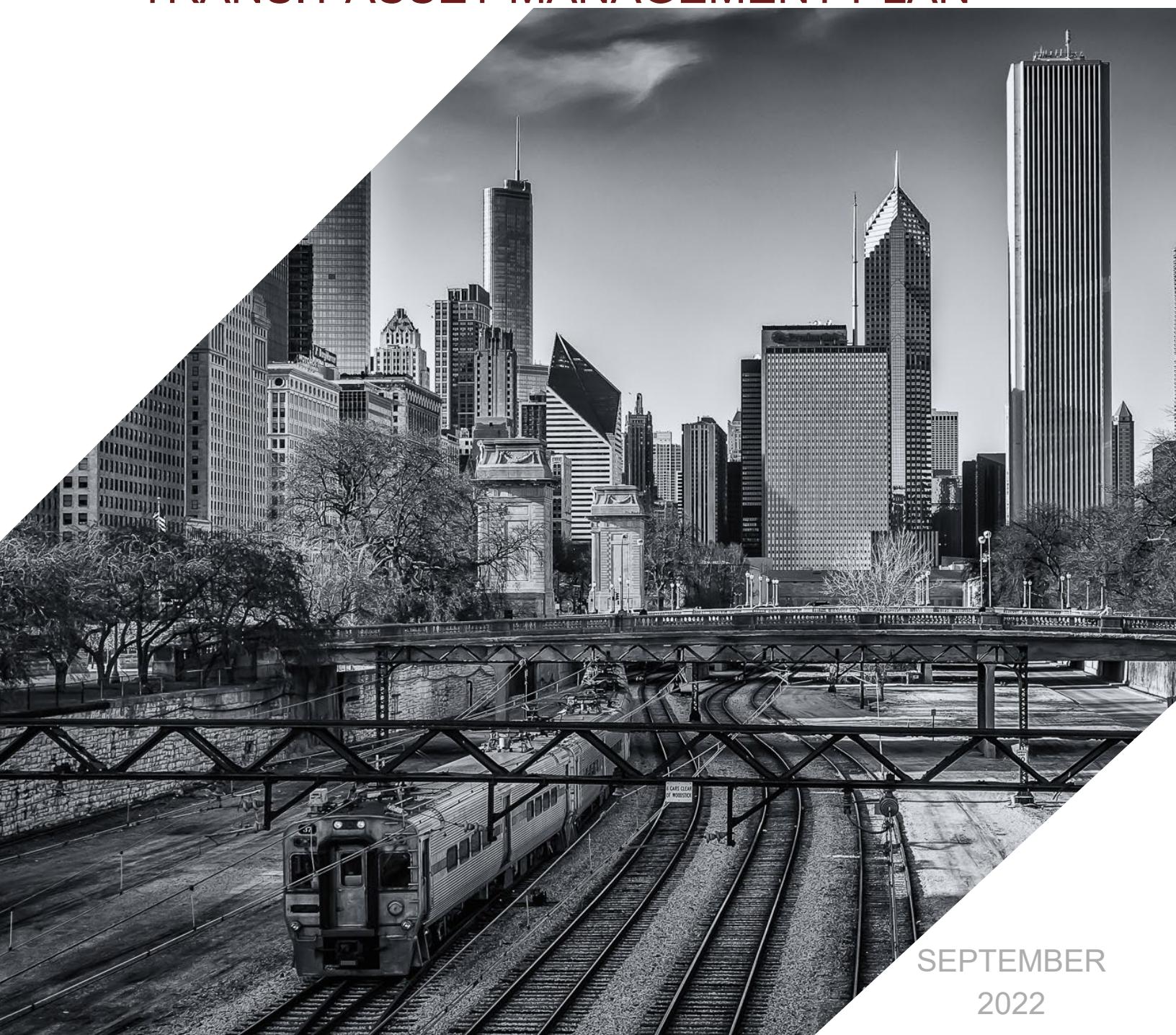




NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT

TRANSIT ASSET MANAGEMENT PLAN



SEPTEMBER
2022



TRANSIT ASSET MANAGEMENT PLAN

SEPTEMBER 2022

APPROVAL

ACCOUNTABLE EXECUTIVE	SIGNATURE	DATE
Michael Noland, President and Chief Executive Officer	 A handwritten signature in black ink, appearing to read 'Michael Noland'.	9/19/2022

REVISION HISTORY

VERSION NO.	DATE	COMMENTS
1	9 / 28 / 2018	Initial version issued in compliance with FTA TAM Final Rule, 49 CFR 625
2	9 / 26 / 2022	Plan update per FTA TAM Final Rule, 49 CFR 625

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1 EXECUTIVE SUMMARY

This Transit Asset Management (TAM) Plan provides an organization-wide view of the asset management work necessary for the NICTD to deliver transit services for the Northwest Indiana region. The TAM Plan was created in compliance with the requirements set out in MAP-21 and the Federal Transportation Administration's (FTA) subsequent TAM Final Rule. In maintaining compliance with 49 CFR 625 NICTD this document is the first of many updates to the plan. The first plan was approved in September of 2018.

1.1 TAM PLAN PURPOSE

The purpose of this TAM Plan is to comply with the requirements of 49 CFR 625 and to:

- Consider how NICTD's levels of service affect and are affected by asset management activities.
- Document the asset portfolio – including nature, extent, age, and condition of NICTD's physical assets.
- Define action plans to improve NICTD's asset management organization, roles and responsibilities, key asset management business processes in place to assist and guide NICTD in delivering the TAM Plan, and the information systems to support work planning, scheduling and management.
- Identify lifecycle management needs by asset class – including maintenance, overhaul, renewal, and replacement.
- Assess the capital and operating budgets required to support safe and reliable service delivery.
- Create a link between investment decisions and specific asset goals.
- Identify the resources required to carry out this TAM Plan.

This initial NICTD TAM Plan provides a baseline from which NICTD will continue to build and improve our asset management capability. The TAM Plan will be updated, extended, and improved in future versions.

1.2 GUIDING PRINCIPLES: NICTD'S ASSET MANAGEMENT POLICY

NICTD has developed an Asset Management Policy that sets the overall direction for all asset management activities at NICTD. The policy describes several core principles around which NICTD will establish asset management strategies and plans:

- 1 *All asset management activities are undertaken within a transparent, integrated NICTD-wide framework.*
- 2 *Risk management is used to inform the asset management decision-making process.*
- 3 *Asset investment decisions will consider lifecycle costs and performance.*
- 4 *Enterprise technology will provide transparent meaningful data and information to support investment and management decisions.*
- 5 *Ownership, control, accountability, and reporting requirements for assets are established, clearly communicated, and implemented.*
- 6 *NICTD will continuously improve our asset management systems, processes, and practices.*

1.3 NICTD'S ASSETS AND THEIR CONDITION

The first step to improving the condition of NICTD's assets is to identify and document the portfolio of assets under NICTD's control. The TAM Plan brings together inventory information from numerous sources, and documents the various vehicles, facilities, stations, communications assets, information technologies, and other assets that allow NICTD to operate service.

The next step to improving the condition of NICTD's assets is to determine their current condition. Reliable knowledge of asset condition will enable NICTD to better justify capital programs and more knowledgeably prioritize investment across divisions and asset classes.

It is critical that NICTD has clear knowledge of the condition and performance of our assets. In order to better communicate our needs and the risks of underinvestment, NICTD must have a good understanding of our state of good repair needs - informed by condition assessments. This condition data will be a key input of NICTD's prioritization process to ensure efficient and effective use of public funding. NICTD's 2022 condition targets are laid out in Table 1-1 below. Annually, NICTD performs a review of the assets covered under this plan. WSP was hired to perform the initial assessment for NICTD owned facilities in 2017. NICTD staff have continued facility assessments on an annual basis.

Table 1-1: Asset Overview and Performance Targets

ASSET OVERVIEW			ASSET PERFORMANCE TARGETS				
ASSET CLASS	ASSET TYPE	QUANTITY	PERFORMANCE METRIC	2021 TARGET	2021 ACTUAL PERFORMANCE	2022 TARGET	NOTES
Rolling Stock	Passenger Rail Cars	82	No more than 0% of fleet have met or exceeded the useful life benchmark.	0%	0%	0%	The useful life benchmark for NICTD's passenger cars is 40 years.
Equipment	Support and Maintenance Vehicles	120	No more than 35% of non-revenue service vehicles have met or exceeded their useful life.	35%	18%	35%	The useful life benchmark varies by type.
Facilities	NICTD Facilities and Stations	17	No more than 0% of facilities rated below condition 3.0 on the TERM scale.	0%	0%	0%	The TERM scale reflects a facility's overall condition. A rating of 3.0 means that the building is in adequate condition.
Infrastructure	Rail Fixed Guideways	102 track miles	No more than 2% of track segments with performance restrictions.	4%	1.5%	16%	There is a performance restriction when the maximum speed for a vehicle is less than the track's design speed at 9:00 am on the first Wednesday of each month (as designated by FTA).

1.4 LIFECYCLE MANAGEMENT STRATEGIES AND ASSET MANAGEMENT ENABLERS

NICTD's core objective is to provide a safe, reliable, efficient commuter rail service. NICTD currently employs a variety of lifecycle management strategies to achieve this objective which are detailed in several NICTD documents. NICTD's asset lifecycle management strategies fall into the following categories:

- **Acquisition** activities to procure, design, build, and transfer assets, taking into account long-term maintenance and operations.
- **Maintenance** activities including inspection/monitoring, preventive maintenance, and corrective maintenance.
 - **Inspection/monitoring** activities to confirm the asset is able to function in its required state and provide a safe operational environment.
 - **Preventive maintenance** activities to achieve a required level of asset performance and maintain a safe operational environment.
 - **Corrective maintenance** activities to return the asset to its required function and restore a safe operational environment.
- **Overhaul/Rehabilitation** to restore the asset to an operational design standard and maintain performance.
- **Capital Replacement** to renew the asset.
- **Disposal** to ensure compliant, efficient, cost-effective retirement of assets.

1.5 INVESTMENT PRIORITIZATION

NICTD's investment decision making is based upon the understanding of our assets and their current levels of service gained through various targeted and documented processes. NICTD's facilities are inspected by NICTD staff annually utilizing the TERM rating system. This rating system is used to identify defects and document if and when a facility or its subcomponent assets require maintenance or further attention. NICTD also maintains a 5 Year Maintenance Plan for track and signal assets. The NICTD Quality Assurance Manual describes the current 1-5/N/X rating methods the agency uses to determine the condition of bridges and culverts. NICTD also inspects rolling stock during routine inspection and maintenance, and conducts in-depth inspections at key times, such as prior to mid-life or end-life renewal programs. NICTD also has documented processes for the inspection of track and electrical assets in compliance with the relevant regulations and codes of practice.

The above condition assessment and inspection processes are the key criteria used in support of decision-making regarding programs, projects, and capital investment for NICTD with regards to our various assets. NICTD's other criteria include safety, affordability, reliability, maintainability, constructability, current performance, and ridership impacts.

1.6 IMPLEMENTATION AND EVALUATION PLAN

NICTD has identified discrete initiatives that will improve our asset management capabilities. Foremost among these are:

- Formal adoption of the Asset Management Policy contained within the TAM Plan by NICTD's top management, which directs the development of future asset management initiatives.
- Formal adoption of this TAM Plan by NICTD, to be used to guide the delivery of maintenance and capital programs.
- The condition targets shall be monitored. Failure to meet targets will be reviewed by NICTD and will result in recommendations for corrective action as appropriate, ensuring that we remain able to deliver the required condition target for each asset class.
- The asset portfolio and condition information shall be updated annually as part of NTD reporting.

At a minimum, this plan will undergo a comprehensive update and review every three years to coincide with the FTA triennial review process. The plan will also be updated when major changes in NICTD's assets occur, such as acquisition of a new fleet. Certain aspects of the plan will be reviewed more frequently, on an annual cycle. This includes a review of asset condition, performance targets (as part of annual submissions to the NTD), and progress against asset management objectives.

2 INTRODUCTION

This Transit Asset Management Plan sets out NICTD's approach to managing the assets that deliver public transportation services in the Northwest Indiana region.

2.1 NICTD BACKGROUND

The Northern Indiana Commuter Transportation District (NICTD) operates the South Shore Line train with service from Millennium Station in Chicago to the South Bend International Airport in South Bend, Indiana. Pre pandemic ridership accounted for approximately 11,000 passengers ride the South Shore Line on an average weekday, primarily commuting between Indiana and downtown Chicago for work. As of the end of 2021 the average weekday ridership was approximately 3,100 passenger rides. Ridership overall is down 68.8% when compared to pre pandemic ridership levels.

Between Millennium Station and 115th street in Chicago, the South Shore Line operates on track, and stops at six stations, owned and maintained by the Metra Electric District. From 115th street to South Bend Airport, NICTD manages 180 miles of track and 13 stations (one in Chicago and 12 in Indiana). NICTD's passenger rail fleet is composed of 72 electric multiple unit cars (EMUs) and 10 trailer cars.

The South Shore Line was originally built from 1901 to 1908 by the Chicago, Lake Shore and South Bend Railway. In 1989, NICTD assumed responsibility for operating passenger service on the line. NICTD is governed by a 5-member Board of Trustees, with one representative from each of the four Indiana counties served by the South Shore Line (Lake, Porter, La Porte, and St. Joseph), and the Indiana Department of Transportation Commissioner serving as the chair of the board.

NICTD generates operating revenues through farebox collections and other sources (e.g. parking, advertising, real estate, and investments), and receives supplemental revenue to cover operating expenses from local, state, and federal sources. Capital funding is provided by the federal government and State of Indiana. In total, NICTD's annual operating budget is approximately \$54 million and the capital budget is \$347 million.

NICTD is currently under way with two major capital improvement projects funded with State and Federal assistance. NICTD received two capital investment grants for the construction of an approximately 8-mile spur line and for the construction of double tracking a 16.9-mile segment of the existing rail corridor. The West Lake Corridor Extension has total costs estimated at over \$944 million adding eight miles of track and constructing four new stations. Thirty-two rehabbed railcars will be utilized to run twelve weekday commuter trains that run into Chicago and multiple weekday and weekend trains that meet up with existing passenger railcar service. The opening of this service is projected for May of 2025. The Double Track project makes significant improvements to 16.9 miles of rail corridor in addition to station improvements at five existing stations. NICTD has leased 26 railcars from Metra to backfill the thirty-two cars that will be utilized on the West Lake service. These leased railcars will allow NICTD to run 14 additional weekday trains with the completion of the Double Track project construction. The Double Track project additional service is expected to begin in May of 2024.

2.2 BACKGROUND ON TRANSIT ASSET MANAGEMENT

In July 2012, the U.S. Government enacted the Moving Ahead for Progress in the 21st Century (MAP-21) Act, a funding and authorization bill that places specific asset management requirements on transit operators across the U.S. MAP-21 requires all transit agencies to develop and update an Asset

Management Plan.¹ An Asset Management Plan provides an organization wide view of the work necessary to deliver the organization's goals and objectives.

The Federal Transit Administration (FTA) released the Transit Asset Management (TAM) Final Rule (49 CFR 625) in July 2016, which set an October 2018 completion date for each agency's initial TAM Plan. Section 2.8 lists the requirements of FTA's TAM Final Rule and describes how the contents of this document relate to these requirements.

¹ While the Fixing America's Surface Transportation (FAST) Act was enacted in December 2015 and now supersedes MAP-21, the asset management requirements of MAP-21 remain unchanged.

2.3 ACCOUNTABLE EXECUTIVE

625.25 (a)(3) A provider's Accountable Executive is ultimately responsible for ensuring a TAM Plan is developed and carried out in accordance with this part.

The Accountable Executive with responsibility for carrying out asset management practices is NICTD's President and Chief Executive Officer.

2.4 SCOPE OF THE TAM PLAN

The TAM Plan covers the following asset types across NICTD's South Shore Line:

- Rolling stock
- Non-revenue vehicles and equipment
- Maintenance and administrative facilities
- Passenger stations and parking facilities
- Track
- Bridges
- Electric traction power
- Signals
- Telecommunications

2.4.1 NICTD SERVICES

NICTD's services interface with a variety of assets owned by a spectrum of institutions throughout northeast Illinois and northwest Indiana. These institutions include but are not limited to NICTD itself, Metra, the City of Chicago, the City of South Bend, and the City of Gary. NICTD owns the track from 115th Street in the City of Chicago to the South Bend International Airport. NICTD has no capital responsibilities for Metra stations, Hegewisch building, or the Beverly Shores building. While NICTD does not have capital responsibility for the aforementioned stations, NICTD does maintain the buildings at Hegewisch and the Beverly Shore station. NICTD owns the platform at Hegewisch. As for the Gary Metro Center Station NICTD owns the platform and stairwells leading up to the platform, however NICTD does not hold any ownership in the access points to that station. The elevator providing access to the Gary Metro Station platform is owned by the City of Gary but is maintained by NICTD. The access points at the Gary Metro Center Station, the Gary Metro Center building and the walkway along Broadway, are maintained by the City of Gary. South Bend International Airport maintains the South Bend Airport station.

2.5 OBJECTIVES

NICTD's Transit Asset Management Plan describes the asset maintenance, overhaul, replacement and enhancement strategies required to provide public transportation services in Northwest Indiana.

The purpose of this plan is to:

- Document the asset portfolio – including nature, extent, age, and condition of NICTD's physical assets;
- Identify existing and proposed levels of service to be achieved with these assets;
- Identify the normalized or steady state lifecycle management needs, including maintenance, replacement and enhancement for each asset class;
- Assess the capital budgets necessary to support safe and reliable transit services and to bring the assets to a state of good repair;
- Document the key processes, organization and technology tools the enable effective asset management; and
- Establish actions plans for improving NICTD's approach to asset management activities.

2.6 RELATIONSHIP TO OTHER DOCUMENTS

NICTD's TAM Plan is informed by and aligned with several other NICTD documents, including:

- **20-Year Strategic Business Plan (2014)** sets forth the goals and objectives around which this TAM Plan is aligned.
- **Maintenance Standard** manual that describes in detail the set of procedures, policies, and standards incorporated into NICTD's maintenance of our assets.
- **Maintenance of Way Department Quality Assurance Manual** documents the procedures and standards for performing construction, maintenance, and inspection on Maintenance of Way department assets, including track, grade crossings, and bridges and culverts.
- **Track and Signal 5 Year Maintenance Plan** describes maintenance work to be undertaken on NICTD track and signal assets.
- **Miscellaneous policies, procedures, standards, and plans**, which document how NICTD operates, providing information used within this TAM Plan.

2.7 TAM PLAN PERIOD

625.29 Transit Asset Management plan: horizon period, amendments and updates. (a) *Horizon period*. A TAM Plan must cover a horizon period of at least four (4) years. (b) *Amendments*. A provider should amend its TAM Plan whenever there is a significant change to the asset inventory, condition assessments, or investment prioritization that the provider did not reasonably anticipate during the development of the TAM Plan. (c) *Updates*. A provider must update its entire TAM Plan at least once every four (4) years. A provider's TAM Plan update should coincide with the planning cycle for the relevant Transportation Improvement Program or Statewide Transportation Improvement Program.

This TAM Plan is the first update to be reviewed and updated once every three years. This is consistent with the FTA-mandated time horizon, and with other relevant planning cycles such as the Northwest Indiana Regional Planning Commission's Transportation Improvement Program (TIP) and Indiana's State Transportation Improvement Program (STIP). Some elements of this plan consider even longer time horizons.

2.8 TAM PLAN REQUIREMENTS

Under 625 of Title 49 Code of Federal Regulations the FTA has introduced requirements for Transit Asset Management. These requirements are summarized in Table 2-1 and cross referenced to the sections in this TAM Plan.

Table 2-1: TAM Plan Requirements

REF#	EXTRACT FROM 49 CFR PART 625	TAM PLAN SECTION
1	625.25 (a)(1) Each tier I provider must develop and carry out a TAM Plan that includes each element under paragraph (b) of this section. (2) Each tier II provider must develop its own TAM Plan or participate in a group TAM Plan. A tier II provider's TAM Plan and a group TAM Plan only must include elements under paragraphs (b)(1) through (4) of this section.	Entire Document
2	625.25 (3) A provider's Accountable Executive.	2.3
3	625.25 (b) A TAM Plan must include (1) An inventory of the number and type of capital assets.	5.1, Appendix A
4	(2) A condition assessment of those inventoried assets for which a provider has direct capital responsibility.	5.2
5	(3) A description of analytical processes or decision-support tools that a provider uses to estimate capital investment needs over time and develop its investment prioritization;	8.1
6	(4) A provider's project-based prioritization of investments,	8.2
7	(5) A provider's TAM and SGR policy;	3
8	(6) A provider's TAM Plan implementation strategy;	9
9	(7) A description of key TAM activities that a provider intends to engage in over the TAM Plan horizon period;	6, 7
10	(8) A summary or list of the resources, including personnel, that a provider needs to develop and carry out the TAM Plan; and	6
11	(9) An outline of how a provider will monitor, update, and evaluate, as needed, its TAM Plan and related business practices, to ensure the continuous improvement of its TAM practices.	6.7
12	625.33 Investment prioritization. (a) A TAM Plan must include an investment prioritization that identifies a provider's programs and projects to improve or manage over the TAM Plan horizon period the state of good repair of capital assets for which the provider has direct capital responsibility. (b) A provider must rank projects to improve or manage the state of good repair of capital assets in order of priority and anticipated project year. (c) A provider's project rankings must be consistent with its TAM policy and strategies. (d) When developing an investment prioritization, a provider must give due consideration to those state of good repair projects to improve that pose an identified unacceptable safety risk when developing its investment prioritization. (e) When developing an investment prioritization, a provider must take into consideration its estimation of funding levels from all available sources that it reasonably expects will be available in each fiscal year during the TAM Plan horizon period. (f) When developing its investment prioritization, a provider must take into consideration requirements under 49 CFR 37.161 and 37.163 concerning maintenance of accessible features and the requirements under 49 CFR 37.43 concerning alteration of transportation facilities.	8
13	625.45 Setting performance targets for capital assets. (a) <i>General.</i> (1) A provider must set one or more performance targets for each applicable performance measure. (2) A provider must set a performance target based on realistic expectations, and both the most recent data available and the financial resources from all sources that the provider reasonably expects will be available during the TAM Plan horizon period.	5.2

2.9 TAM PLAN STRUCTURE

The plan format shown below outlines the sections contained in this Transit Asset Management Plan.



3 ASSET MANAGEMENT POLICY

The Asset Management Policy defines the guiding principles by which NICTD will manage the assets we own and maintain. The policy establishes the direction and objectives for developing asset management capability and implementing an asset management plan.

625.25 (b) A TAM Plan must include (5) A provider's TAM and SGR policy;

The Northern Indiana Commuter Transportation District (NICTD) is committed to employing asset management strategies in order to provide the highest level of service possible by the most cost-effective means available. It is the policy of NICTD to manage our assets efficiently and effectively in order to improve the State of Good Repair and deliver on our mission of providing safe and reliable transportation to our customers.

NICTD will establish asset management strategies and plans according to **six core principles**:

- 1 All asset management activities are undertaken within a transparent, integrated NICTD-wide framework.** Asset management requires the delivery by all NICTD departments of their respective responsibilities to ensure that the goals and objectives of NICTD's service levels are effectively and efficiently supported.
- 2 Risk management is used to inform the asset management decision-making process.** NICTD will work to better understand the characteristics of our assets through a risk management framework that will advance preventive activities to reduce risks.
- 3 Asset investment decisions will consider lifecycle costs and performance.** Decisions will be based on a systems approach that combines the implications of managing all aspects of an asset's lifecycle. NICTD will manage lifecycle needs efficiently to maximize the ability to deliver reliable service amidst budget constraints.
- 4 Enterprise technology will provide transparent meaningful data and information to support investment and management decisions.** NICTD's enterprise asset management (EAM) systems will increasingly be used to initiate and record data on all activities relating to NICTD's assets. This data will be used to support optimized investment in maintenance and capital planning, for maximized benefits and lower life cycle costs.
- 5 Ownership, control, accountability and reporting requirements for assets are established, clearly communicated and implemented.** Stewardship roles and responsibilities for the fleet, facilities, and equipment will be clearly defined. NICTD leadership will support staff in their various roles to deliver on the defined asset management strategies.
- 6 NICTD will continuously improve our asset management systems, processes, and practices.** In order to deliver on our performance, efficiency and financial targets, NICTD is committed to continuous improvement. Asset management activities and processes will be reviewed periodically and as events determine, and will be open to internal audit.

4 LEVELS OF SERVICE

This section of the TAM Plan establishes the relationship between NICTD's strategic goals, levels of customer service it provides and the required technical performance of assets.

4.1 OVERVIEW

One of the basic cornerstones of good asset management practice is to align asset management activities with an asset owner's corporate objectives and customer levels of service, thereby ensuring that assets deliver the required levels of service efficiently and economically. This alignment enables the relationship to be determined between levels of service and the cost of service delivery. In turn, this relationship can be evaluated to:

- Determine the affordability of an assets operating and capital need to meet the customer service levels.
- Develop asset management strategies and plans to meet required performance targets.
- Monitor asset performance to enable NICTD to continue to meet defined levels of service.
- Where necessary, justify additional funding requirements or justify service cut-back requirements.

4.2 SCOPE OF SERVICES

NICTD currently operates 43 scheduled trains in revenue service each weekday. Nine of these trains are inbound morning rush hour trains, and eight of these are outbound rush hour trains. Four of these trains are primarily positioning moves between the Michigan City Shops Storage Yard and South Bend, although all trains are revenue runs open to passengers.

NICTD provides commuter rail transportation services for the four Northern Indiana counties of Lake, Porter, La Porte, and St. Joseph. The South Shore Line runs between the South Bend Airport and Millennium Station in Chicago, serving South Bend, Hudson Lake, Michigan City (two stations), Beverly Shores, Dune Park, Portage / Ogden Dunes, Gary (three stations), East Chicago, Hammond, Hegewisch, Hyde Park, and downtown Chicago (three stations). South Shore Line riders come primarily from these four counties and southeast Chicago / south Cook County, Illinois, but are also drawn from adjacent Indiana counties and southwest Michigan. Figure 4-1, below, shows the entire NICTD rail system.

Figure 4-1: NICTD System Map



4.3 LEVEL OF SERVICE DEVELOPMENT

Following the publication of the **NICTD 20-Year Strategic Business Plan (May 2014)**, NICTD has an opportunity to align asset and asset management performance targets to corporate strategic goals. The relationship between NICTD's Strategic Priorities, Customer Objectives and Asset Performance Measures is highlighted below in Table 4-1: NICTD Service Performance Targets

Table 4-1: NICTD Service Performance Targets

	Strategic Priority 1: South Shore Line Baseline	Strategic Priority 2: West Lake Extension	Strategic Priority 3: Market Expansion	Strategic Priority 4: South Shore Line Maintenance
Definition (from the 20 Year Strategic Business Plan)	Baseline investments to maintain service standards and reliability on the existing South Shore line.	A West Lake Extension linking downtown Chicago and the rapidly growing areas of central Lake County.	Major improvements to the existing South Shore Line to provide faster, more reliable trips.	Ongoing, regular system maintenance to maintain the South Shore Line in a state of good repair.
Investment Priorities	<ul style="list-style-type: none">▪ Positive Train Control▪ New Car Orders▪ Existing Car Overhauls▪ Double Tracking▪ Metra Facility Capacity Improvements	<ul style="list-style-type: none">▪ West Lake Extension	<ul style="list-style-type: none">▪ Portage/Ogden Dunes Hi-Level Platform▪ Michigan City Realignment/Station▪ South Bend Realignment▪ Gary Station Improvements	<ul style="list-style-type: none">▪ Planned Annual Capital Investments
Customer Outcomes	<ul style="list-style-type: none">▪ Federally mandated safety infrastructure▪ Replace/rehabilitate rolling stock in excess of 40 years in service▪ Greater reliability and schedule flexibility▪ Improved train operations by updating track and storage facilities	<ul style="list-style-type: none">▪ Service from Chicago to Lake County	<ul style="list-style-type: none">▪ Reduce dwell times and improve travel time▪ Realignment of route through Michigan City; consolidate stations▪ Realignment of approach into terminal station at the airport▪ New station facilities serving Gary	<ul style="list-style-type: none">▪ Maintenance & state of good repair
Asset Performance Measures	<ul style="list-style-type: none">▪ % of on-time trains (less than 6-minute deviation from timetable)	<ul style="list-style-type: none">▪ N/A	<ul style="list-style-type: none">▪ N/A	<ul style="list-style-type: none">▪ N/A

4.4 SERVICE TRENDS AND PROJECTIONS

NICTD currently has a Spare Ratio of 14%². With the completion of the West Lake Corridor and Double Track projects NICTD expects increases in ridership. The completion of the capital projects will come with additional service as well as 26 additional railcars to provide the additional service. While NICTD continues to see ridership recovery from the pandemic the completion of construction

² NICTD 2021 National Transit Database Report

will provide safer more reliable service and projects increases in ridership as well as service. NICTD expects the spare ratio to remain below 20%.

The improvements in the station facilities, rebounding economic conditions in downtown Chicago and the increase in gasoline prices will ultimately increase both rush hour and off-hour ridership. To what extent this additional patronage can be accommodated will be closely related to fleet size. NICTD's service policy is for everyone on every train to have a seat.

5 ASSET PORTFOLIO

NICTD's robust portfolio of assets enables rail service across 160 miles of NICTD- and Metra-owned track. NICTD owns 72 EMUs, 10 passenger trailer cars, 52 bridges, 11 stations, 10 electrical substations, and other assets. NICTD's assets are located in the City of Chicago and throughout Northwest Indiana in counties of Lake, Porter, La Porte, and St. Joseph.

5.1 ASSET PORTFOLIO

625.25 (b) A TAM Plan must include (1) An inventory of the number and type of capital assets. The inventory must include all capital assets that a provider owns, except equipment with an acquisition value under \$50,000 that is not a service vehicle. An inventory also must include third-party owned or jointly procured exclusive-use maintenance facilities, passenger station facilities, administrative facilities, rolling stock, and guideway infrastructure used by a provider in the provision of public transportation. The asset inventory must be organized at a level of detail commensurate with the level of detail in the provider's program of capital projects;

A summary of NICTD's asset inventory is provided in Table 5-1 below, by asset class. NICTD's inventory is constantly evolving, and this table represents NICTD's assets to the best of our knowledge as of mid-2018. Additional information for each asset class can be found in Appendix A.

Table 5-1: NICTD Current Asset Portfolio³



Rolling Stock	Equipment	Facilities	Infrastructure
72 Passenger EMUs 10 Passenger Trailer Cars	87 Non-Revenue Vehicles 33 Large Pieces of Equipment	8 Maintenance and Administrative Facilities (incl. 3 combined passenger/administrative) 12 NICTD-owned Passenger Stations, and Adjacent Parking (incl. 3 combined passenger administrative) 7 Metra-owned Passenger Stations, and Adjacent Parking 1 Passenger Stations, and Adjacent Parking, owned by others	103 miles of NICTD-owned Track 52 Bridges, spanning 8325 feet 10 Substations 103 miles of mainline catenary 29 Signal Control Points 21 Intermediate Signal Locations 74 Telecommunications Assets

³ NICTD Property Insurance Schedule, 2017 Inventory Listings

5.2 ASSET CONDITION + PERFORMANCE

625.25 (b) A TAM Plan must include: (2) A condition assessment of those inventoried assets for which a provider has direct capital responsibility. A condition assessment must generate information in a level of detail sufficient to monitor and predict the performance of the assets and to inform the investment prioritization

625.45 Setting performance targets for capital assets. (a) General. (1) A provider must set one or more performance targets for each applicable performance measure. (2) A provider must set a performance target based on realistic expectations, and both the most recent data available and the financial resources from all sources that the provider reasonably expects will be available during the TAM Plan horizon period.

It is critical that NICTD has clear knowledge of the condition and performance of our assets. This information enables justification of capital program funding requests and project prioritization across divisions and asset classes. In order to better communicate needs and the risks of underinvestment, NICTD must have a good understanding of our state of good repair needs - informed by condition assessments. This condition data will be a key input of NICTD's prioritization process to ensure efficient and effective use of public funding.

5.2.1 CONDITION RATING METHODOLOGY

NICTD measures the condition of our assets in various ways, depending on the type of asset.

For facilities, NICTD has hired WSP USA to assess our facilities in accordance with the FTA's Facility Assessment Guidebook. Under this methodology, 10 primary level components of each station have been assigned a 1 to 5 score, where 1 indicates poor condition and 5 indicates excellent condition (see Table 5-2 for more detail), and these scores have been weighted and rolled up to create a composite score for each facility.

In alignment with FTA requirements for performance targets, NICTD measures the condition of rolling stock and equipment based on useful life benchmarks.

NICTD measures infrastructure performance based on the presence of a performance restriction (i.e., when the maximum speed for a vehicle is less than the track's design speed) at 9:00 am on the first Wednesday of each month, as required by the FTA. In addition, NICTD monitors the condition of our infrastructure assets via regular inspection. In the case of bridges and culverts, these inspections result in the assignment of a condition rating, using the scale shown in Table 5-2.

Table 5-2: NICTD Condition Rating Scales

RATING	FACILITIES	BRIDGES	CULVERTS
5	Excellent – No visible defects, new or near new condition, may still be under warranty if applicable	Excellent condition- no cause for concern	Acceptable condition and functioning as intended- No repairs necessary at this time
4	Good – Good condition, but no longer new, may be slightly defective or deteriorated, but is overall functional	Good condition- low levels of deterioration/ corrosion- continue to observe at next scheduled inspection	Below minimum acceptable condition- Low priority for repairs
3	Adequate - Moderately deteriorated or defective, but has not exceeded useful life	Fair condition - Moderate deterioration levels – No immediate repairs required - Note items to be observed carefully during subsequent inspections - Observe all noted items carefully at the next scheduled inspection.	Presence of distress or deterioration not functioning as intended- Medium priority for replacement, repair, and/or slow order
2	Marginal – Defective or deteriorated and in need of replacement; exceeded useful life	Repairs recommended - Repairs to be completed as soon as practical - Might require a slow order until the repairs are completed. May also require shorter inspection intervals. Also used to indicate that a special detailed inspection or other study is needed - Might require a slow order until the bridge is subjected to a detailed study.	Hazardous condition or severe distress or deterioration- High priority for replacement, repair, and/or slow order
1	Poor – Critically damaged or in need of immediate repair; well past useful life	Immediate Action- Emergency repairs are required before trains can be allowed on the structure. On completion of the emergency repairs, the structure should be upgraded to a condition index of 2, until a detailed investigation can be conducted.	Danger of collapse- Immediate replacement, and/or repair required as soon as possible
N	Not Applicable	Not Accessible	Element cannot be visually inspected
X	Not Applicable	Not Applicable	Element not applicable to this culvert

5.2.2 CURRENT CONDITION INFORMATION + PERFORMANCE TARGETS

NICTD's 2022 condition targets are laid out in NICTD's "Transit Asset Management Targets" as seen in Table 5-3.

5.2.3 CHANGES TO CONDITION

NICTD has completed the final phase of the traction power system replacement. This replacement includes all overhead catenary components within NICTD's owned railway with the exception of miles zero to three. NICTD began the railcar end life rehabilitation program in late 2019 with seven cars completed through June of 2022. The initial 32 railcars going through the end life process will be utilized for the future West Lake Corridor service expected to begin in May of 2025. NICTD's goal is to complete the end life rehabilitation process for the 32 cars by May of 2025 and then continue the program for the remaining 16 railcars that are eligible for the end life program.

Table 5-3: NICTD Condition Rating Scales

Table 5-4: NICTD Performance Targets

ASSET OVERVIEW			ASSET PERFORMANCE TARGETS				
ASSET CLASS	ASSET TYPE	QUANTITY	PERFORMANCE METRIC	2021 TARGET	2021 ACTUAL PERFORMANCE	2022 TARGET	NOTES
Rolling Stock	Passenger Rail Cars	82	No more than 0% of fleet have met or exceeded the useful life benchmark.	0%	0%	0%	The useful life benchmark for NICTD's passenger cars is 40 years.
Equipment	Support and Maintenance Vehicles	120	No more than 35% of non-revenue service vehicles have met or exceeded their useful life.	35%	18%	35%	The useful life benchmark varies greatly by type.
Facilities	NICTD Facilities and Stations	15	No more than 0% of facilities rated below condition 3.0 on the TERM scale.	0%	0%	0%	The TERM score reflects a facility's overall condition. A rating of 3.0 means that the building is in adequate condition.
Infrastructure	Rail fixed guideways	180	No more than 2% of track segments with performance restrictions.	4%	1.5%	16%	There is a performance restriction when the maximum speed for a vehicle is less than the track's design speed at 9:00 am on the first Wednesday of each month (as designated by FTA).

6 ASSET MANAGEMENT ENABLERS

Asset Management at NICTD is carried out by numerous departments within the agency. Core business processes and support technologies enable asset management decisions and practices.

6.1 OVERVIEW

This section describes the organization of NICTD, including the roles and responsibilities for asset management, and the resources that will be needed to carry out the activities outlined within this plan. It also covers the core business processes in place to assist and guide NICTD in delivering Asset Management, and the information and technology systems that support asset management, work planning, and decision making.

6.2 ORGANIZATION AND RESOURCE PLAN

625.25 (b) A TAM Plan must include: (8) A summary or list of the resources, including personnel, that a provider needs to develop and carry out the TAM Plan

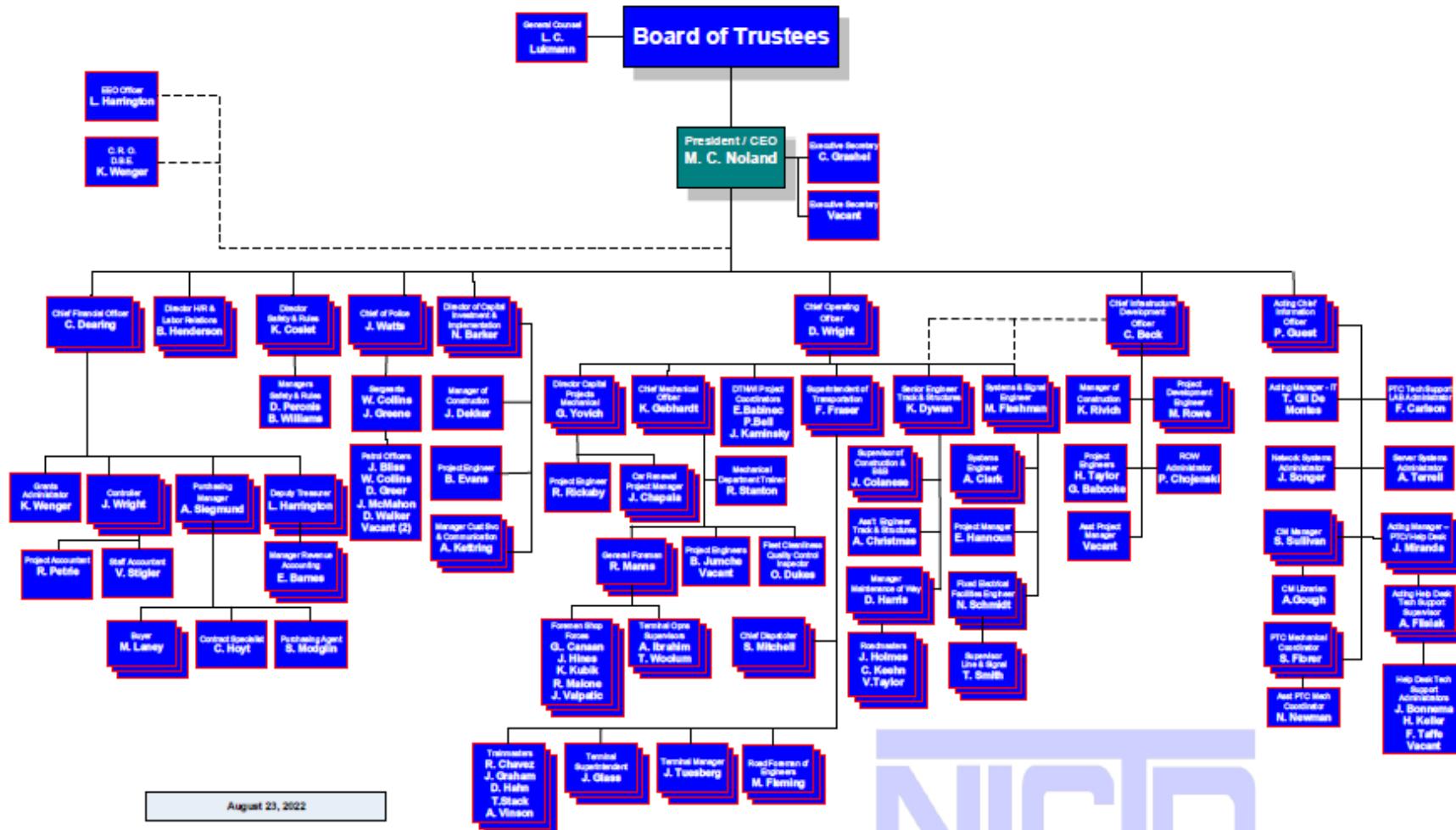
NICTD's President and Chief Executive Officer is the Accountable Executive for Asset Management and is responsible for ensuring that this TAM Plan is developed and carried out. The creation of NICTD's TAM Plan has been guided by an interdepartmental effort that includes staff from the Mechanical, Line & Signal, Track & Structures and Buildings and Bridges divisions, and is led by the NICTD Grant Administrator, who is responsible for coordination of the asset management program at NICTD. Figure 6-1 depicts leadership responsibilities at NICTD.

The NICTD Grant Administrator is the key organizational resource for NICTD's TAM Plan. The NICTD team is working with various departments collaboratively, as true asset management is the responsibility of everyone in the organization. Each individual in the organization interfaces with NICTD's assets through the completion of their key responsibilities at the agency. The final TAM Plan will be disseminated throughout the organization to ensure transparency and effectiveness of the future of asset management at NICTD.

Moving forward, resources from across NICTD will be required to implement elements of the TAM Plan. Staff from the Bridges and Buildings department will carry out the required facility condition assessments annually, and staff from all asset departments will play a role in ensuring accurate annual NTD reporting. The Grant Administrator will continue to develop performance targets and measure progress, as well as will also consolidate inventory and condition data for NTD reporting, with support from asset owners.

Figure 6-1: NICTD Organizational Chart

Northern Indiana Commuter Transportation District Organization Chart



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6.3 CORE BUSINESS PROCESSES

625.25 (b) A TAM Plan must include: (7) A description of key TAM activities that a provider intends to engage in over the TAM Plan horizon period

Several core business processes enable NICTD's ability to develop and implement TAM activities, as described in Table 6-1.

Table 6-1: Key Business Processes

KEY BUSINESS PROCESS	CURRENT STATUS
Strategic Planning	NICTD's 20 Year Strategic Business Plan. This was in coordination with the Regional Development Authority of northwest Indiana. This study includes regional social and economic trends and details of investment programs.
Capital Planning	NICTD's 20 Year Strategic Business Plan identifies a four-part investment strategy focused on baseline investments, West Lake Extension, Market Expansion, and state of good repair.
Performance measurement, management and review	The Grant Administrator will collect performance data for the four performance targets specified in the TAM Final Rule annually and present it to the board for agreement and sign-off by the President and Chief Executive Officer. On time performance will continue to be measured and reviewed on a daily basis.
Standard operating procedures (SOPs)	NICTD keeps policies and standard operating procedures regarding all areas of our business, including 25 that specifically refer to procurement throughout the asset lifecycle process. These policies document standard operating procedures for actions ranging from vendor contacts, hazardous materials, contract terms, and surplus and scrap disposal.
Maintenance planning and scheduling, definition and audits	NICTD has a rigorous maintenance plan outlined in the five-year Track and Signal Plan. NICTD maintains our revenue rolling stock in compliance with the Federal Railroad Administration set regulations. NICTD also considers the spare ratio and assumes this ratio should decline over time as ridership increases. NICTD is undergoing mid-life and end-life rebuilds for the current rail fleet and is actively considering fleet increases per our capital program. NICTD also has a thorough Maintenance Standard (for Mechanical Assets) and Quality Assurance Manual (for Maintenance of Way Assets), which summarize maintenance and inspections for NICTD's various assets.
Compliance, assurance and audit	NICTD is in conformance with Governmental Accounting Standards Board (GASB) Statement 20, Indiana Code 8-5-15-19, and Title 2 U.S. Code of Federal Regulations Part 200, <i>Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards</i> (Uniform Guidance).
Project Management and asset transitioning	NICTD maintains a comprehensive construction management plan manual for signal, catenary, positive train control and substations. In the future, this will include track as well.
Management of Change	Policy changes (e.g., related to preventive maintenance practices) are communicated via Modification/Change Request Form, and ultimately incorporated into the NICTD Configuration Management spreadsheet. ⁴ If the change is also PTC related, a PTC Change Request form is also filled out, which is then incorporated into the NICTD Talon CM system.

⁴ NICTD Change Management Procedure

6.4 STANDARDS, LEGISLATION, REGULATION, AND OTHER MANDATED REQUIREMENTS

NICTD's maintenance procedures and schedules, specifically designed to address the needs of NICTD's unique type of service, are based on Federal Railroad Administration (FRA), American Public Transportation Association (APTA), and Original Equipment Manufacturer (OEM) required and recommended procedures. With regard to signals, NICTD uses the AREMA C&S manual and 459CFR 236, and in compliance with Positive Train Control, NICTD relies on AAR. In some cases, NICTD exceeds these recommendations to account for asset age and the additional asset wear that results from the frequent starts and stops associated with operating passenger rail service in an urbanized area.

Maintenance practices are periodically revised based on NICTD experience, manufacturers' recommendations, or availability of better materials and products. Maintenance of rolling stock is governed through the Federal Railroad Administration (FRA) regulations. The FRA has set guidelines for mandated inspections that NICTD schedules in accordance with set regulations. These inspections identify areas that require preventative maintenance in order to extend vehicle longevity. The policies and procedures associated with inspection and maintenance of continuous welded track are upheld to 49 CFR Part 213 Track Safety Standards.

The Maintenance Department is committed to revising, when necessary, the Maintenance Standard manual for NICTD. This manual has incorporated the following documents: 1) Nippon Sharyo's Complete Maintenance Manual, Running Maintenance and Service Manual, and Heavy Maintenance Manual, 2) APTA's Manual of Standards and Recommended Practices for Rail Passenger Equipment, 3) CFR Title 49: 200-399, and 4) Terminal Carmen's Training Manual.

6.5 TECHNOLOGY

(3) A description of analytical processes or decision-support tools that a provider uses to estimate capital investment needs over time and develop its investment prioritization;

NICTD's core technology systems underpin our effective operating model and are key to our ability to manage our assets. Particular technologies can be seen in Table 6-2 below.

Table 6-2: NICTD Core Technology Systems

TECHNOLOGY	DESCRIPTION / PURPOSE
AccuFund	This is an accounting software used for Fixed Asset Record keeping. This system produces reports in a excel format. Separate departments also keep records for their specific assets, which could be Excel or Word documents.
TALON ⁵	Used as a tool for asset lifecycle management. It is capable of reporting and producing specific asset data information. Currently TALON is used for PTC Configuration Management.
Signal & Train Control Software	The Signal & Train Control Software Configuration Management Plan (S&TCSMP) was developed in compliance with the AREMA Recommended Configuration Management Plan for Railroads as described in the AREMA C&S Manual, Section 17.5.1.
Mastercar	This is an access database built by IT to track rolling stock failures. The database uses a 3-tier hierarchy based on the OEM O&M manuals. The old system used to be paper based.

⁵ PTC Configuration Management Plan

7 LIFECYCLE MANAGEMENT STRATEGIES

Lifecycle management strategies have been further developed as part of this TAM Plan to capture the baseline or steady state activities necessary to achieve and maintain a state of good repair, and to ensure NICTD's assets are functional, reliable, and are able to continue to support a safe, efficient, and sustainable regional operation.

7.1 OVERVIEW

625.25 (b) A TAM Plan must include:

(7) A description of key TAM activities that a provider intends to engage in over the TAM Plan horizon period;

NICTD's core objective is to provide a safe, reliable, efficient commuter rail service. NICTD currently employs a variety of lifecycle management strategies to achieve this objective which are detailed in NICTD documents such as the Maintenance Standard manual, the Maintenance of Way Department Quality Assurance Manual, and the Track and Signal 5 Year Maintenance Plan. NICTD's asset lifecycle management strategies fall into the following categories:

- **Acquisition** activities to procure, design, build, and transfer assets, taking into account long-term maintenance and operations.
- **Maintenance** activities including inspection/monitoring, preventive maintenance, and corrective maintenance.
 - **Inspection/monitoring** activities to confirm the asset is able to function in its required state and provide a safe operational environment.
 - **Preventive maintenance** activities to achieve a required level of asset performance and maintain a safe operational environment.
 - **Corrective maintenance** activities to return the asset to its required function and restore a safe operational environment.
- **Overhaul/Rehabilitation** to restore the asset to an operational design standard and maintain performance.
- **Capital Replacement** to renew the asset.
- **Disposal** to ensure compliant, efficient, cost-effective retirement of assets.

The sections that follow describe NICTD's strategies with respect to each of these in more detail.

7.2 ACQUISITION

NICTD maintains a comprehensive set of formal policies describing our acquisition practices.⁶ These policies ensure that the agency is acquiring goods and services consistent with state and federal procurement laws. This includes maintaining a complete record of each procurement to be reviewed by the Department Heads, Purchasing Department and Accounting Department, following practices outlined within FTA Circular 4220.1F and FTA's Best Practices Manual, and striving to obtain quotes, bid, or proposals from three or more sources in the open market.

⁶ Procurement Policies 3, 3A, 5, 6, 17, 22

In addition to these general principles, NICTD's acquisition policies range from managing change orders, price and cost analysis, formal bids and awards, blanked purchase orders and release notice policy, and responsible contractors and pre-qualifications.

7.3 MAINTENANCE

Maintenance and inspection regimens follow requirements of the FRA, EPA, ADA Act, and any other government regulations, as well as recommendations from the manufacturer, the American Public Transportation Association (APTA), and the Association of American Railroads (AAR). Where appropriate, the manufacturer's technical manuals and OEM based instructions serve as standard operating procedures (SOPs) for many assets.

INSPECTION/MONITORING

NICTD undertakes routine inspections of many critical assets to prevent unexpected failures, in line with government regulations and industry best practice. The frequency and depth of inspections varies by asset class. For example, The FRA requires NICTD's rail cars to be inspected at intervals of 92 days, six months, one year, and three years. NICTD tries to inspect rail cars more frequently, with a periodic basic inspection every 60 days, as well as the 92-day inspection carried out at alternative 60-day intervals, such that each car is in the shop approximately once every 30 days.

NICTD annually inspects our facilities with a standard process that involves identifying deficiencies in the categories of facility substructure, shell, interiors, conveyance, plumbing, HVAC, fire protection, electrical, equipment/fare collection, and site. In 2018, this process was updated to be compliant with the FTA's facility condition rating guidance.

Main tracks and sidings are inspected twice per week by an inspector riding a Hi-rail vehicle or on foot, and receives more detailed inspections at less frequent intervals. Bridges receive annual inspections, as well as period or special inspections as necessary. Other applicable assets also receive some form of inspection at least once per year.

PREVENTIVE MAINTENANCE

NICTD's thorough maintenance manuals and processes attempt to prevent emergency and corrective maintenance through inspection and early intervention; however, preventive maintenance is typically limited. The majority of maintenance work performed is reactive in response to inspections.

CORRECTIVE MAINTENANCE

Corrective maintenance is identified through the various inspection processes that NICTD completes for our assets on an annual (or more frequent) basis. The corrective actions range from immediate to year-long time frames to implement a fix. Defects are generally recorded on a paper-based report, then programmed for corrective maintenance by the appropriate department. Corrective maintenance on many assets is performed in-house by NICTD employees, however, NICTD has contracted with third party vendors for corrective maintenance as needed.

7.4 OVERHAUL/REHABILITATION

NICTD has a thorough rehabilitation program for our rolling stock assets, including both mid-life and end-life programs. To promote long-term high reliability of the fleet, NICTD has undertaken mid-life rebuilds of our rail car fleet. The program began in 1998/1999 when the eligible rail cars were 16 or 17 years old and restored the fleet to like-new condition. The rebuild has allowed the fleet to exceed the federally expected minimum life of 25 years of revenue service. Major modifications made to subsequent rolling stock purchases will be evaluated and included in the scope of future overhauls as appropriate.

NICTD received grants from the FTA permitting mid-life rebuild of all 58 of the rail cars delivered to NICTD in the years 1982, 1983 and 1992. As of April 1, 2013, NICTD had completed all the mid-life work on all 58 of these cars. However, NICTD has determined that mid-life rebuild work is needed for the cars that went into revenue service in 2001, and that an end of life rebuild program is needed for select 1982-83 cars that last went through rebuilding in 2000 and 2001. NICTD is now preparing to begin that work. NICTD has determined that no more than two (2) revenue service cars will be held out of service for rebuild at any one time.

Assessment of NICTD's long term needs for repair facilities resulted in a corollary FTA grant to construct a building adequate for conducting mid-life overhaul (and other car repair activities in the future). These facilities were placed in service late in 1996 and are still in good operating condition.

Typically, the rebuild work NICTD is considering requires about three months' work for each car. Cars are brought in on a staggered basis based on job completion. End of life work will be performed to allow the fleet to exceed the federally mandated minimum fifteen (15) additional years of revenue service. Identified preferred modifications of future car purchases will be captured to be included in the rebuild of current cars, to maintain consistency across cars. NICTD projects that it will complete this end-life program by the end of calendar year 2027.

Overhauls of other assets, such as bridges, stations, or other facilities, are based on criticality and need, which is determined by subject-matter experts and funding availability.

7.5 CAPITAL REPLACEMENT

NICTD prefers to exhaust all possible maintenance and overhaul/rehabilitation options prior to replacing a capital asset. A 2016 Carshell Assessment provided a detailed report weighing the options of the 10 and 15-year life extension program. This program is for the oldest cars in NICTD's fleet; therefore, NICTD will not be undergoing capital replacement for our rolling stock due to the aging of these assets in the near future.

Discrete projects to replace equipment, infrastructure, and facilities are created and prioritized according to the capital investment prioritization process.

7.6 DISPOSAL

There are 6 categories NICTD utilizes when deciding how to dispose of surplus or scrap items; sell in other markets, return to suppliers, rework to new configuration, rework to salvage components, destroy, and use for nonproduction purposes.

Inventory items that have been identified as inactive within the last 24 months will be consulted on future needs with the user.⁷ If it is determined that there is no need, the item will be declared as surplus. The Purchasing Manager will send a copy of the inactive list to the Accounting Department, who will enter the book value of the surplus units. This list with the valuation will then be sent to the Purchasing Manager, who will coordinate with the appropriate buyers for disposal.

⁷ Procurement Policies 15, 16

8 INVESTMENT PRIORITIZATION

As part of our 20-year Strategic Business Plan, NICTD has proposed a \$31.4 billion capital investment program that prioritizes projects throughout our Baseline Program, Market Expansion Program, and Westlake Extension Program. This section focuses on a 4-year time horizon, following the previously identified Transit Asset Management Plan period.

625.25 (b) A TAM Plan must include: (4) A provider's project-based prioritization of investments;

625.33 Investment prioritization. (a) A TAM Plan must include an investment prioritization that identifies a provider's programs and projects to improve or manage over the TAM Plan horizon period the state of good repair of capital assets for which the provider has direct capital responsibility. (b) A provider must rank projects to improve or manage the state of good repair of capital assets in order of priority and anticipated project year. (c) A provider's project rankings must be consistent with its TAM policy and strategies. (d) When developing an investment prioritization, a provider must give due consideration to those state of good repair projects to improve that pose an identified unacceptable safety risk when developing its investment prioritization. (e) When developing an investment prioritization, a provider must take into consideration its estimation of funding levels from all available sources that it reasonably expects will be available in each fiscal year during the TAM Plan horizon period. (f) When developing its investment prioritization, a provider must take into consideration requirements under 49 CFR 37.161 and 37.163 concerning maintenance of accessible features and the requirements under 49 CFR 37.43 concerning alteration of transportation facilities.

8.1 DESCRIPTION OF ANALYTICAL PROCESSES FOR INVESTMENT PRIORITIZATION

NICTD's decision process is based upon our understanding of our assets and their current levels of service gained through various targeted and documented processes. NICTD's facilities are inspected by staff annually, and in 2018 were also assessed by WSP USA following FTA guidance and utilizing the TERM rating system. This rating system is used to identify defects and document if and when a facility or its systems require maintenance or further attention. NICTD also maintains a 5 Year Maintenance Plan for track and signal assets. The NICTD Quality Assurance Manual describes the current 1-5/N/X rating methods the agency uses to determine the condition of bridges and culverts. NICTD also inspects rolling stock during routine inspection and maintenance, and conducts in-depth inspections at key times, such as prior to mid-life or end-life renewal programs. NICTD also has documented processes for the inspection of track and electrical assets in compliance with the relevant regulations and codes of practice.

The above condition assessment and inspection processes are the key criteria used in support of decision-making regarding programs, projects, and capital investment for NICTD with regards to our various assets. NICTD's other criteria include safety, affordability, reliability, maintainability, constructability, current performance, and ridership impacts.

8.2 PROJECT-BASED PRIORITIZATION OF CAPITAL INVESTMENTS

Investment prioritization is a key part of the NICTD TAM program. Based on the decision processes described above, NICTD has identified our priority capital projects as reflected in the 2022-2026

Transportation Improvement Program. These project priorities can be seen, along with their priority ranking and annual costs, in Table 8-1. Unranked projects (those marked with an asterisk) are not SOGR funded projects, but rather represent either annual 5307 funding (Maintenance Overhaul), or major new projects (Double Track between Gary and Michigan City, South Bend Realignment, and West Lake Development and Construction) that may be funded through discretionary grants.

Table 8-1: Prioritization of Capital Projects

RANK	PROJECT	2022	2023	2024	2025	2026	TOTAL
1	End Life – 1982 Cars	\$1,004,500	\$5,695,500	\$5,695,500	\$6,000,000	\$5,304,500	\$23,700,000
2	Substation Rehabilitation	\$3,356,720	\$4,708,609	\$2,979,035	\$2,534,497	\$3,800,000	\$17,378,861
3	Railcar Lease	\$-	\$2,586,480	\$2,586,480	\$2,586,480	\$2,586,480	\$10,345,920
4	MED Improvement Project	\$8,395,500	\$4,500,000	\$4,500,000	\$4,500,000	\$4,500,000	\$26,395,500
5	Track Improvements	\$5,500,000	\$100,000	\$750,000	\$1,000,000	\$1,200,000	\$8,550,000
6	Catenary/Signal Improvements	\$-	\$1,500,000	\$1,500,000	\$2,500,000	\$1,500,000	\$7,000,000
7	Facility Improvement	\$1,600,000	\$250,000	\$763,520	\$1,000,000	\$-	\$3,613,520
8	Station Improvements	\$-	\$563,520	\$-	\$848,520	\$-	\$1,412,040
9	PTC Equipment	\$1,200,000	\$-	\$-	\$-	\$-	\$1,200,000
10	Bridge Rehabilitation	\$1,025,000	\$1,775,000	\$1,775,000	\$-	\$2,000,000	\$6,575,000
11	Shop Equipment	\$-	\$-	\$260,000	\$1,900,000	\$-	\$2,160,000
12	Computer Equipment	\$100,000	\$-	\$650,000	\$165,000	\$200,000	\$1,115,000
13	Maintenance/Support /Police Vehicles	\$562,700	\$562,700	\$562,700	\$569,393	\$609,968	\$2,867,461
14	Track Equipment	\$700,000	\$675,000	\$1,381,000	\$700,000	\$1,413,520	\$4,869,520
15	Mid-Life 2000 Cars	\$1,404,500	\$1,404,500	\$1,404,500	\$1,000,000	\$2,695,500	\$6,904,500
*	Maintenance Overhaul	\$30,800,000	\$143,500,000	\$134,400,000	\$500,000	\$9,425,028	\$45,312,976
*	Double Track Gary Michigan City	\$5,281,263	\$5,153,750	\$5,256,250	\$5,362,500	\$6,476,425	\$271,905,644
*	South Bend Realignment Construction	\$5,000,000	\$5,000,000	\$15,000,000	\$-	\$-	\$10,000,000
*	West Lake Project	\$46,200,000	\$252,300,000	\$230,700,000	\$112,600,000	\$3,569,320	\$520,898,850
	Grand Total	\$399,433,837	\$322,841,236	\$43,197,157	\$59,838,208	\$10,045,745	\$972,204,792

8.3 ESTIMATION OF AVAILABLE CAPITAL FUNDING

In order to pay for our capital investments over the three-year TAM Plan period, NICTD will rely on funding from the sources described in Table 8-2, and Table 8-3.⁸

Table 8-2: Baseline Program Capital Cash Flow, 2022-2024

SOURCES OF FUNDS	2022	2023	2024	TOTAL
Metra Capital Improvement Bond Proceeds	\$-	\$40,000,000	\$40,000,000	\$80,000,000
Available 5337 SOGR Funds after Debt Service (calculated above)	\$19,075,536	\$15,857,047	\$20,307,735	\$55,240,318
Available Situs Bond Funds after Debt Service	\$4,768,884	\$3,964,262	\$4,961,547	\$13,694,693
Grand Total	\$23,844,420	\$64,321,309	\$60,307,735	\$148,935,011

Table 8-3: Market Expansion Capital Cash Flow, 2022-2024

SOURCES OF FUNDS	2022	2023	2024	TOTAL
Federal Funding Share (Discretionary 5309)	\$356,882,148	\$322,841,236	\$43,197,157	\$722,920,541
Bond Proceeds and Other New Investments	\$-	\$4,500,000	\$4,500,000	\$9,000,000
New Capital Funding Source Required	\$10,000,000	\$-	\$-	\$10,000,000
Grand Total	\$366,882,148	\$327,341,236	\$47,697,157	\$741,920,541

8.4 OPERATIONS AND MAINTENANCE FORECASTS

Operating and maintenance forecasts described in NICTD's 20-Year Strategic Business Plan detail the cash flows for the plan's three major segments, two of which have operations and maintenance impacts on this TAM Plan period. These forecasts can be seen below in Table 8-5, Table 8-6, and Table 8-7.

Table 8-4: Baseline Program Operating Expenses, 2022-2024 (reported in thousands)

SOURCES OF FUNDS	2022	2023	2024	TOTAL
Transportation	\$24.66	\$24.66	\$24.66	\$73.98
Maintenance of Way	\$7.82	\$8.08	\$8.34	\$24.24
Maintenance of Equipment	\$15.11	\$15.60	\$16.08	\$46.79
General and Administrative	\$11.19	\$11.56	\$11.92	\$34.67
Claims and Insurance	\$2.53	\$2.62	\$2.70	\$7.85
Grand Total	\$57.55	\$59.40	\$61.20	\$178.15

⁸ NICTD's Capital Plan

Table 8-5: Baseline Program Operating Revenues, 2022-2024 (reported in thousands)

SOURCES OF FUNDS	2022	2023	2024	TOTAL
Passenger Fare Revenue	\$8.50	\$12.50	\$17.50	\$38.50
Federal Maintenance Grant (5307)	\$ 11.50	\$ 11.50	\$ 11.50	\$34.50
NICTD PSA	\$3.70	\$3.70	\$3. 70	\$11.10
CSS ROI	\$ 1.12	\$ 1.12	\$ 1.12	\$3.36
Misc.	\$1.07	\$1.07	\$1.07	\$3.21
CRSF	\$ 10.55	\$ 10.87	\$ 11.18	\$32.60
ERSF	\$ 0.20	\$0.20	\$0.20	\$0.60
PMTF	\$ 5.39	\$ 5.39	\$ 5.39	\$16.17
<i>New Operating Source Required</i>	\$16.71	\$14.24	\$10.73	\$41.68
Grand Total	\$58.74	\$60.59	\$62.39	\$181.72

Table 8-6: Market Expansion Program Operating Revenues, 2022-2024 (reported in thousands)

SOURCES OF FUNDS	2022	2023	2024	TOTAL
Additional Passenger Fare Revenues – Ridership Growth	\$-	\$-	\$6.00	\$6.00
Grand Total	\$-	\$-	\$6.00	\$6.00

9 IMPLEMENTATION AND EVALUATION PLAN

NICTD recognizes that this TAM Plan is only the first step in achieving the organization's asset management goals and commits to embarking on the improvement initiatives listed here in order to enhance our asset management practices over time.

625.25 (b) A TAM Plan must include: (6) A provider's TAM Plan implementation strategy; (8) A summary or list of the resources, including personnel, that a provider needs to develop and carry out the TAM Plan; (9) An outline of how a provider will monitor, update, and evaluate, as needed, its TAM Plan and related business practices, to ensure the continuous improvement of its TAM practices

This plan is a living document which is relevant and integral to daily activity, and NICTD commits to carrying out the activities within this plan.

To ensure the plan remains useful and relevant, the following on-going monitoring and review activities will be undertaken:

- Formal adoption of the Asset Management Policy contained within the TAM Plan by NICTD's top management, which directs the development of future asset management initiatives.
- Formal adoption of this TAM Plan by NICTD, to be used to guide the delivery of maintenance and capital programs.
- The condition targets shall be monitored. Failure to meet targets will be reviewed by NICTD and will result in recommendations for corrective action as appropriate, ensuring that we remain able to deliver the required condition target for each asset class.
- The asset portfolio and condition information shall be updated annually as part of NTD reporting.
- NICTD's maintenance documents will be periodically monitored and updated, to ensure that the lifecycle management strategies contained therein continue to adequately address our assets' maintenance needs.

In addition, this plan will undergo a comprehensive update and review every three years. The plan will also be updated when major changes in NICTD's assets occur, such as acquisition of a new fleet, facility, or infrastructure. Certain aspects of the Plan will be reviewed more frequently, on an annual cycle. This includes a review of asset condition, performance targets (as part of annual submissions to the NTD), and progress against asset management objectives.

The NICTD Grant Administrator is the central point of contact for the TAM Plan implementation and improvement actions. This plan's implementation is the responsibility of all NICTD employees as the agency builds a culture of proactive asset management. Each sector of the agency has a role to play in the management of our collective assets. The implementation of this asset management plan will improve alignment of asset management to organizational goals, establishment of performance monitoring and management, enhancement of supply chain management, improvement of capital planning delivery, and more.

APPENDIX A: DETAILED INVENTORY

ROLLING STOCK

Table A-1: Rolling Stock Inventory

TYPE	MANUFACTURER	YEAR	QUANTITY
EMU-1	Nippon Sharyo	1982/3	34
EMU-1A	Nippon Sharyo	1983	7
EMU-2	Nippon Sharyo	1992	7
TMU-1	Nippon Sharyo	1992	10
EMU-3	Nippon Sharyo	2001	10
EMU-4	Nippon Sharyo	2009	14
Total			82

EQUIPMENT

Table A-2: Non-Revenue Vehicles Inventory

MAKE	MODEL	YEAR RANGE	QUANTITY
Chevy	Tahoe	2019	1
	550 Welder (Hi-rail)	2012	1
	Silverado	2019	1
	Silverado 1500 4x2	2016	2
	Silverado 1500 4x4	2012-2021	14
	Silverado 2500 4x4	2016-2018	7
	Silverado 2500 4x4 (Hi-rail)	2015	1
	Silverado 2500 4x4 (Plow)	2020	1
	Silverado 3500 (Dump)	2016	1
	Silverado 3500 4x4	2012	1
Ford	ADA Transit Bus	2017	1
	E350 Passenger Van	2006	1
	Econoline Van	2009	2
	Escape XLS	2009	1
	Explorer	2015-2018	6
	F-150	2018	1
	F-750 Tower Truck	2019	1
	Transit Van	2020	1
	F250 (Hi-rail)	2017	1
	F250 (V Plow & Fuel)	2015	1
Freightliner	F250 4x4 (Hi-rail)	2017	1
	F350	2015	1
	F350 (Plow)	2015	1
	F550	2016	1
	F550 Signal Crew	2011	1
Police Interceptor		2014-2020	4
Tower Truck (Hi-rail)		2004	1
Crew Cab		2015	1
Crane Truck		2011	1
Digger Derrick		2014	1

MAKE	MODEL	YEAR RANGE	QUANTITY
	Dump Truck	2011	1
	M2-106	2015-2019	5
	M2-106 (Hi-rail)	2019	1
	Welder Truck (Hi-rail)	2014	1
GM	Digger Derrick	2010	1
GMC	Digger Derrick	2010	1
Subaru	Outback	2011-2021	18
	Total		87

Table A-3: Equipment Inventory

DESCRIPTION	YEAR ACQUIRED
Ballast Regulator	2015
Case 580SM Backhoe	2007
Case 580SM Loader Backhoe	2009
Case 721F Wheel Loader	2012
Dual Anchor Adjuster	2013
Dual Anchor Spreader	2013
EMD GP38-2 Locomotive	2000
Fairmont Tamper Undercut	1996
Freightliner CC	2015
Harsco Production Tamper Model	2008
Harsco Tamper Model #6700	2008
John Deere Loader Backhoe 310SL	2017
John Deere Utility Tractor Loader	2017
Kershaw Ballast Regulator	2000
Kershaw Track Broom	2004
Kershaw Tie Crane Model 12-12	2004
Kershaw Tie Crane	2017
Knorr Brake Test Bench Equipment	2011
Lathe	2004
Locomotive Simulator	2009
Nordco CX Track Spiker	2005
Nordco Spike Puller	2013
Nordco-Jackson Tamper	2016
Nordco TRIPP Tie Inserter	2017
Nordco Rebuilt Spiker	2020
Racine OTM Reclaimer	2010
Racine Tie Plate Inserter	2010
Stanray Wheel Truing Machine	1990
Swing Master Spd. Swing Crane	1993
Takeuchi Mini Excavator TB153F	2014
Track Stabilizer TS-30-27	2001
Tripp Tie Inserter/Remover	2008
Wheel Loader Model 721D	2003
Total	33

FACILITIES

Table A-4: Maintenance and Administrative Facilities Inventory

SITE	NAME	ADDRESS	YEAR	CONDITION	SQ. FT.	PARKING
Carroll Avenue Site	General Office Building	503 N. Carroll Ave.	1994	3	5,824	60
Carroll Avenue Site	Operations Control Center	503 N. Carroll Ave.	2005	4	7,400	87
Hammond Compound	Maintenance Facilities	4528 Johnson Ave, Hammond, IN	1964	3	640	63
Dune Park	Administrative Offices	33 E. Hwy. 12, Chesterton, IN	2000	5 (incl. station)	12,800 (incl. station)	480 (incl. station)
East Chicago	Administrative Offices	5615 Indianapolis Blvd., East Chicago, IN	2004	4 (incl. station)	12,600 (incl. station)	1,277 (incl. station)
Roeske Avenue Site	Carmen Building	601 N. Roeske Ave., Michigan City, IN	1984	3	2,500	N/A
Roeske Avenue Site	Mechanical Shops and Line & Signal Building	601 N. Roeske Ave. Michigan City, IN	2000	3	56,590	100
Roeske Avenue Site	Engineering and Midlife Shop	601 N. Roeske Ave., Michigan City, IN	1996	5	29,640	38

Table A-5: Passenger Stations and Parking Facilities Inventory

NAME	ADDRESS	YEAR	CONDITION	SQ. FT	PARKING	
Hegewisch Station Platform Only	13730 South Brainard Ave.	Unknown	5	17,400	0	
Hammond Station	4531 Hohman Ave., Hammond, IN	1996/7	4	21,000	680	
East Chicago Station	5615 Indianapolis Blvd., East Chicago, IN	2004	4 (incl. admin)	17,000 (incl. admin)	1,277 (incl. admin)	
Gary/Chicago Airport Station	Clark Road & 2 nd Ave., Gary, IN	Unknown	5	3,000	85	
Gary Metro Center Station	200 W 4 th Ave., Gary, IN	1984	3	11,500	0	
Miller (Gary) Station	56650 E. Dunes Hwy., Miller, IN	1997	3	6,200	290	
Portage/Ogden Dunes Station	US Hwy 12 & Hillcrest Road, Portage, IN	1997	3	9,700	240	
Dune Park Station	33 E. Hwy. 12, Chesterton, IN	1986	5 (incl. admin)	18,800 (incl. admin)	480 (incl. admin)	
Beverly Shores Station	525 Broadway, Beverly Shores, IN	1932	3	1,500	38	
Michigan City 11 th St. Station	114 East 11 th Street, Michigan City, IN	2007 (Shelter)	4	192	38	
Carroll Ave Station	503 N. Carroll Avenue, Michigan City, IN	2015	4	3,600	100	
Hudson Lake Station	County Rd. 700N and Chicago Rd., La Porte County	Unknown	4	300	20	
South Bend Airport Station	4477 Progress Drive, South Bend, IN		Not Owned by NICTD			
South Bend (Amtrak) Passenger Facility	2702 W. Washington Ave, South Bend, IN	1970	3	5250	35	

NICTD does not own the parking facility at the Gary Metro Station. That is owned and maintained by the City of Gary. In addition to the stations listed in Table A-5 NICTD also uses seven stations owned by Metra: Millennium, Van Buren Street, Museum Campus/11th Street, McCormick Place, 57th Street (Hyde

Park), and 63rd Street stations. Hegewisch station is also owned by Metra however the platform is owned by NICTD and all maintenance at that station is provided by NICTD.

INFRASTRUCTURE

NICTD operates on 102 miles of NICTD-owned track, as well as 57 miles of Metra owned track. Along this track are 52 bridges. Overhead catenary spans the entire track, including 102 miles owned by NICTD, and is powered by 11 substations (10 of which are owned by NICTD). Fifty signal locations and over 70 telecommunications assets also support NICTD's rail service. Table A-6 through Table A-9: Signals Inventory

SIGNAL TYPE	COUNT
Control Point	29
Intermediate Signal	21
Total	50

Table A-10 contain more detail on the inventory for each of these infrastructure assets.

Table A-6: Track Inventory

TRACK OWNER	START MP	END MP	NUMBER OF TRACKS IN RANGE	TOTAL TRACKAGE (MILES)
Metra	0	1.2	3	3.6
	1.2	14.5*	4	53.2
Metra Total:				56.8
NICTD	75.3*	58.1	2	34.8
	58.1	54	1	4.1
	54	47.5	2	13
	47.5	43.7	1	3.8
	43.7	43	2	1.4
	43	38.6	1	4.4
	38.6	37.9	2	1.4
	37.9	36	1	1.9
	36	35.2	2	1.6
	35.2	19.1	1	16.1
	19.1	18.5	2	1.2
	18.5	10.3	1	8.2
	10.3	9.8	2	1
	9.8	0	1	9.8
NICTD Total:				102.3

* Note MP 14.5 on Metra is MP 75.3 on NICTD (Kensington)

Table A-7: Bridge Inventory

BRIDGE LOCATION	MP	MATERIAL	SPAN TYPE	LENGTH (FT)
Geyer Ditch	8.18	Steel	1 Beam	33
U.S. 20	13.32	Steel	1 Beam	38
Lake Park	15.93	Steel	1 Beam	67
Galena Road	20.28	Cast Iron Pipe	Pipe	10
Rolling Prairie	20.57	Steel	Thru Girder	65
Chiddick Road	21.57	Steel	Thru Girder	65
Galena River	24.65	Concrete	Slab	24
State Road 39	25.29	Steel	1 Beam	88
Andry	26.9	Culvert	Culvert	15
Indiana 212	30.4	Culvert	Culvert	10
C&O	31.5	Culvert	Culvert	16
Trail Creek	31.79	Steel	Deck Girder	86
Lake Park Ave.	36.2	Culvert	Culvert	6

BRIDGE LOCATION	MP	MATERIAL	SPAN TYPE	LENGTH (FT)
Pines	37.5	Culvert	Culvert	12
Keiser	39.9	Culvert	Culvert	6
Tremont	42.6	Culvert	Culvert	9
Tremont	43.2	Cast Iron Pipe	Culvert	5
Waverly Road	43.9	Culvert RCC Box	Culvert	18
Wigwam	44.51	Culvert RCC Box	Culvert	27
Main Entrance Drive	47.32	Steel	Thru Girder, Ballast Rock	128
NS Railroad	47.41	Steel	Thru Girder	308
Air Products	48.48	Culvert	Culvert	24
Burns Ditch	50.11	Steel	Thru Girder	205
Burns Ditch	50.11	Steel	Thru Girder	205
Hobart Road	54.62	Steel	Thru Girder	67
B&O Railroad	54.73	Steel	Truss	148
Broadway	58.84	Steel	Deck Girder	128
NS Railroad	61.07	Steel	Thru Girder	308
NS Railroad	61.07	Steel	Thru Girder	278
3rd Ave	61.18	Steel	Deck Girder	148
3rd Ave	61.18	Steel	Deck Girder	148
EJ&E Railroad	63.37	Steel	Thru Girder	120
EJ&E Railroad	63.37	Steel	Deck Girder	27
EJ&E Railroad	63.37	Steel	Thru Girder	123
EJ&E Railroad	63.37	Steel	Deck Girder	20
Kennedy Avenue	65.32	Steel	Thru Girder	276
Shell Access Road	65.81	Steel	Thru Girder	80
Indianapolis Boulevard	66.33	Steel	Thru Girder	117
Grand Calumet River	66.97	Steel	Thru Girder	1893
150th Street	67.32	Steel	Thru Girder	144
149th Street	67.45	Steel	Thru Girder	126
Hoffman Street	67.62	Steel	Thru Girder	190
Chicago Street	67.87	Steel	Thru Girder	288
Columbia Avenue	68.01	Steel	Thru Girder	635
Ash Avenue	68.19	Steel	Thru Girder	56
Torrance Avenue	71.67	Steel	Deck Girder & Truss	642
Calumet River	72.38	Steel	Truss	272
Calumet River	72.38	Steel	Deck Girder	148
ICG Access Road	72.57	Steel	Stringers	116
I-94	73.14	Steel	Thru Girder	161
I-94	73.14	Steel	Thru Girder	161
Kensington Maintenance Road	75.37	Concrete	Slab	35
Total:				52 bridges / 8325 feet

Table A-8: Electrical Inventory

ELECTRICAL ASSET TYPE	NAME	YEAR (BUILDING)
Substations	Wickliffe Substation	2009 (rehab in 2016)
	Eastport Substation	Unknown (roof replaced in 2000)
	Grandview Substation	1995
	Hegewisch Substation (owned by Metra)	1999 (new roof in 2004)
	Carroll Street Substation	2010
	Tee Lake Substation	2010
	New Carlisle Substation	2007
	Columbia Substation	Unknown
	Madison Substation	1992
	Furnessville Substation	Unknown (roof replaced in 2001)
Total Substations		10
Catenary Wire	Total Miles of Catenary Wire	103

Table A-9: Signals Inventory

SIGNAL TYPE	COUNT
Control Point	29
Intermediate Signal	21
Total	50

Table A-10: Telecommunications Inventory

TELECOMMUNICATS ASSET TYPE	TELECOMMUNICATIONS ASSET SUB-TYPE	QUANTITY
Passenger Communications Systems	Paging System (Hammond)	1
	PA Systems at Train Platforms	1
	Paging System (East Chicago)	1
	Comm System Analyzer with Cable Feet	1
Phone System	Lighting Protection Phone Switch	1
	M120 TDD Pay Phone (Hegewisch)	1
	Message Archive System	1
	Phone Switch (Dune Park)	1
	Phone Switch (Michigan City)	1
	Power System-GOB	1
	Supercom TDD Machine (ADA)	1
	UPS For Phone System	1
Radio	2500 Mobile Radios	2
	2500 Portable Radios	4
	Analog Base Station Repeater	1
	APX7000 Digit Police Radios	8
	HT1250 Police Radios	2
	ICOM Mobile Radios	11
	Locomotive Radio	1
	Motorola MT1000 Portable Radio	1
	Police Base Station Radio Sys	1
	Radio Equipment	1
	Radio Enclosure Kits	12
	Spectra R/R Mobile Radio	5
Safety and Security	Alarm System (Randolph Street)	1
	Alarm System (Dune Park Office)	1
	Camera Equipment (Kensington)	1
	Camera (Dune Park)	1
	Camera & Monitor (Randolph Street)	1
	Cameras on Trains	1
	CCTV System	1
	Homeland Security-Video System	1
	Microphones and Cameras CCTV	1
	Rebel X-S Camera	1
	Security System (Randolph Street)	1
	Time Lapse Camera & VCR Recorder	1
	Video Surveillance Equipment	1
	Building Access Control System	1
Total		75