

Pace Suburban Bus

INITIAL TRANSIT ASSET MANAGEMENT PLAN



OCTOBER 2018



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Prepared with support from:



APPROVAL

ACCOUNTABLE EXECUTIVE	SIGNATURE	DATE
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EXECUTIVE SUMMARY

BACKGROUND

In 2012, Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law. MAP-21 made several fundamental changes to the statutes which authorize the Federal transit programs at 49 U.S.C. Chapter 53. Transit agencies who receive federal assistance or grant money, are required by 2016 law, 49 CFR 625, to create a Transit Asset Management (TAM) Plan comprised of a capital asset inventory (i.e. vehicles, facilities, equipment), capital asset condition assessment, investment prioritization, and performance target measures related to achieving a State of Good Repair (SGR). The intent is to provide increased transparency into agencies' budgetary decision-making process.

By FTA definition, Pace is considered a Tier I provider because we operate greater than 101 vehicles across all fixed route modes. Each Tier I provider developing a TAM Plan must report annually to the National Transit Database (NTD). Pace is required to have an initial nine element TAM Plan in place by no later than October 1, 2018. Pace has successfully met this federal requirement by producing this document along with the accompanying appendices.

In October 2017, Pace awarded a five-year contract to WSP, USA, Inc., to provide TAM Plan consulting services to assist Pace with meeting our MAP-21 regulatory obligations. WSP shall help staff map the organizational mission for TAM and NTD by developing, mentoring, and training, a cross-functional internal TAM task force committee(s) in the industry best practices of transit asset management by educating staff in ways to approach transit asset management as a strategic business plan initiative. On an annual basis, the TAM Consultant shall refine and annually update the capital asset inventory, develop and conduct an annual capital asset condition assessment of all Pace facilities, and update the TAM Plan as required by federal rule.

TAM PLAN PURPOSE

This TAM Plan covers a five-year time horizon. While this is one year longer than the FTA mandated four-year time horizon, it is consistent with Pace's Capital Business Plan, and other Federal planning cycles, such as the region's 2014-19 Transportation Improvement Program (TIP) developed by the Chicago Metropolitan Agency for Planning (CMAP), the region's federally designated Metropolitan Planning Organization (MPO). The purpose of Pace's initial TAM Plan is to:

- Document the existing asset portfolio – including nature, extent, age, and condition of Pace's physical assets.
- Identify existing and proposed levels of service to be achieved with these assets.
- Document the key processes, organization, technology, and tools that are required to perform effective asset management.
- Identify the lifecycle management strategies of each asset class, including inspection, maintenance, rehabilitation, and replacement.

- Assess the capital and operating budgets necessary to support safe, reliable, courteous, efficient, and effective public transportation services.
- Establish plans for reviewing and improving Pace’s approach to asset management activities.

ASSET MANAGEMENT POLICY

Pace’s first Asset Management Policy was developed in 2018 in accordance with the FTA ruling on asset management and existing policies at Pace. The policy establishes Pace’s commitment to maximizing the utilization of Pace’s capital assets and establishing a cost-effective plan for long term capital investment needs while balancing service/operational needs and requirements and minimizing lifecycle costs. Transit Asset Management provides a process for performance planning and establishing the strategy for transit capital assets to be maintained in a state of good repair.

PACE’S ASSETS AND THEIR CONDITION

The first step to improving the condition of Pace’s assets is to identify and document the portfolio of assets under Pace control. Pace owns, operates, and maintains a variety of assets, including facilities, vehicles, equipment, and garages. Pace contracts out certain types of transportation services to third party contractors, including paratransit and some municipal services. The assets used for these contracted services are maintained by the contractors.

This TAM Plan brings together inventory information from numerous sources and documents the various rolling stock, facilities, equipment, and systems assets that allow Pace to serve our customers. At a high-level, Pace’s assets include:

- | | |
|---|--|
| → 780 Fixed Route Buses | → Farebox System |
| → 501 Paratransit Vehicles owned by Pace | → 12 Transportation Centers |
| → 775 Paratransit Vehicles owned by others | → 26 Boarding and Turnaround Facilities |
| → 695 Vanpool Vehicles | → 29 Park and Ride Lots (10 owned by Pace, 19 by others) |
| → 122 Community Transit Service Vehicles | → Radio System |
| → 171 Non-revenue vehicles | → Automated Vehicle Location (AVL) System |
| → 35 Administration and Maintenance Facilities (12 owned by Pace, 23 by others) | → Intelligent Bus System (IBS) |
| | → Transit Signal Priority (TSP) System |
| | → DriveCam On-Bus Security System |

The second step to improving the condition of Pace’s assets is to understand their current condition. Reliable knowledge of asset condition will enable Pace to justify capital programs, funding requests, and more knowledgeably prioritize across multiple divisions and asset classes. Pace already has contracts or processes in place to assess the condition of our facilities and rolling stock, and we will continue to refine our condition inspection and assessment processes and criteria for other asset classes moving forward. This TAM Plan provides preliminary condition information for all asset classes, which will be updated in future iterations of the Plan.

Preliminary condition information reveals that many of our assets are in good condition. However, expansion or procurement of additional assets, such as garage space, will be important in order to continue to maintain our existing assets and grow our ridership. Pace's maintenance and rehabilitation practices enable our assets to function safely and meet our service goals, however, additional resources would allow Pace to be more innovative in our service provision and the asset management required to provide those services.

ASSET MANAGEMENT ENABLERS AND LIFECYCLE MANAGEMENT STRATEGIES

Asset Management activities at Pace, including the development of this plan, are led by Pace's Capital Infrastructure Program Manager and Transit Asset Management Coordinator who are located in the Capital Financing and Infrastructure Department and are responsible for day-to-day activities related to TAM. Individuals from many other departments throughout Pace have been involved in the development of this TAM Plan, through participation in workshops and provision of relevant data and information, and will continue to play an important role in managing Pace's assets moving forward.

Enterprise-wide processes and technologies enable Pace to deliver our asset management objectives and make decisions about asset investments. Pace stores information on our rolling stock assets in Oracle Enterprise Asset Management (eAM). Pace uses a variety of other programs, some of which are flexible, such as Oracle Application Express (APEX), to store, manage, and analyze data on asset age, condition, and replacement costs.

During the development of this TAM Plan, the lifecycle strategies for all major assets were reviewed, and a shift to more advanced asset management principles and planning has begun at Pace. In order to continue to implement innovative solutions to provide more reliable, efficient, and effective service, Pace must invest in both new and existing assets and technology. Pace's Bus on Shoulder and Pulse programs are representative of the direction we are moving; however, innovative programs will require additional investment moving forward to enable Pace to continue to provide these services while continuing to practice effective asset management, including conducting inspections, preventative maintenance, and the immediate correction of any defects identified.

INVESTMENT PRIORITIZATION

Pace has had a Capital Project Scoring process in place since 1991, including Capital Project Scoring Criteria. The criteria have been adjusted as needed over the years during annual budget cycles to accommodate funding limitations and shifting agency priorities. Pace is currently preparing for an update to our 20-year strategic plan, *Vision 2020: Blueprint for the Future*, which will inform future adjustments to our Capital Project Scoring process. Pace's Budget Planning and Analysis Department sends out a call for submission of projects annually to kick-off the budgeting cycle. Capital budget requests must include project funding justifications and demonstrate a need that will be met, while taking into account asset management and impact on State of Good Repair. The

total annual request for capital funding typically exceeds the available funding, requiring the Budget Planning and Analysis Department, in coordination with the user departments and Senior Staff, to prioritize the projects that will receive funding. The team assembles a review committee, which uses the existing Capital Project Scoring Criteria to assess the requests.

For fiscal years 2019 through 2023, Pace expects to have approximately \$289.5 million available for capital investments from federal funds, Regional Transportation Authority (RTA) appropriations, Pace bond funds, and positive budget variance (PBV) funds. This funding will be invested in projects ranging from replacement and rehabilitation of rolling stock to procuring new and rehabilitating existing facilities, garages, and the farebox system.

ASSET MANAGEMENT IMPLEMENTATION

At a minimum, this Plan will undergo a comprehensive update and review every four years, with a preferred update cycle of every three years to coincide with the FTA triennial review process. 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 National Transit Database), and progress against asset management objectives.

Building on our existing strengths in asset management, such as our established Capital Project Scoring process, we have made significant strides toward improving our asset management practices. Pace has written and approved our initial asset management policy and our initial Asset Management Plan (this document), and have contracted with a consulting company to develop a condition assessment methodology for facilities, as well as to conduct condition assessments.

Pace looks forward to building on these first steps to grow a mature asset management system that will enable us to improve our state of good repair and ensure the successful operations of our regional bus and paratransit services for many years to come.

APPENDICES

As previously indicated, the appendices follow the main document, providing detail for each of Pace's major asset classes on asset inventory, asset condition, lifecycle management strategies, asset management enablers, and capital budget forecasts. These major asset classes are based on the Regional Transportation Authority (RTA) annual budget categories:

- Stations and Passenger Facilities
- Support Facilities and Equipment
- Rolling Stock (Revenue Vehicles)
- Electrical, Signal, and Communications

1. INTRODUCTION

This Initial Transit Asset Management (TAM) Plan sets out Pace’s approach to managing our assets in order to deliver public transportation services in Northeastern Illinois.

OVERVIEW

Pace Suburban Bus, a premier suburban transit provider, safely and efficiently moves people to work, school, and other regional destinations. The backbone of Chicago’s suburbs, and one of the largest bus services in North America, Pace serves tens of thousands of daily riders. Pace’s services include fixed route, ADA Paratransit, Dial-a-Ride, Call-n-Ride, a Vanpool Incentive Program (VIP), Pace RideShare, and Community Transit Services.

Pace provides service to an area that covers six counties, 3,446 square miles, and approximately 8.3 million residents, encompassing a wide range of demographic groups, activity centers, travel patterns, and development patterns. The 284 municipalities, townships, and other units of local government that are represented each come with their own unique character, history, and travel needs. Pace’s innovative approach to public transportation gives the agency a national reputation as an industry leader.

Throughout the 1980s and 1990s, Pace focused our efforts on enhancing transit service to meet the demands of the growing suburban population. In 2002, Pace launched our biggest transit initiative to date, called *Vision 2020: Blueprint for the Future*. This plan focused on creating a faster network that was more convenient and intuitive for users.

Since then, accessibility has become one of Pace’s primary goals. Pace provided “Section 504” service to people with disabilities several years before this type of service was required by the Americans with Disabilities Act. In 2006, Pace had established ourselves as a leader in providing efficient, quality service to people with disabilities, and the Illinois legislature designated that Pace would assume responsibility for ADA

What is an Asset Management Plan?

An asset management plan provides an organization-wide view of the work necessary to deliver the organization’s goals and objectives.

How will Pace use this Asset Management plan?

In striving to achieve a State-of-Good-Repair (SGR), this plan provides Pace with:

- A consolidated set of current practices and policies
- Consolidated technical and financial information about Pace’s assets
- An understanding of our challenges, and present and future demands
- Clearly established links between organizational goals and asset management initiatives

paratransit in Chicago from the CTA. The move made Pace one of the largest providers of paratransit service in the United States. Pace also established one of the largest vanpool programs in the nation and became the regional ridesharing administrator for Northeastern Illinois in 2006, bringing coordination of carpools into the program. This initial TAM Plan will provide a baseline from which Pace will continue to build and improve asset management practices, which will lead to potential savings and increased efficiency in the programs detailed above.

ACCOUNTABLE EXECUTIVE

625.25 (a)(3) A provider's Accountable Executive is ultimately responsible for ensuring that 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 Pace's Executive Director, **T.J. Ross**.

TAM PLAN SCOPE AND OBJECTIVES

This is Pace's initial TAM Plan, covering the following asset types:

- Stations and Passenger Facilities
- Support Facilities and Equipment
- Rolling Stock (Revenue Vehicles)
- Electrical, Signal, and Communications

The purpose of this initial TAM Plan is to:

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

This initial TAM Plan provides a baseline from which Pace will continue to build and improve our asset management practices.

RELATIONSHIP TO OTHER DOCUMENTS

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

- [Vision 2020: Blueprint for the Future](#) sets forth the goals and objectives around which this TAM Plan is aligned.
- [2019 Operating and Capital Program; 2019-2021 Business Plan for Operations; and 2019-2023 Capital Business Plan](#) which provide an overview of Pace's system, describe the funding challenges we face, and outline the capital and operating budget projections, including the five-year capital program.
- [2016 Rolling Stock, Facilities, and Equipment Maintenance Manual](#) describes how Pace maintains our fleet of rolling stock and equipment.
- [Facility Maintenance Plans and Practice Overview and Procedures for Inspections](#) contains information on how responsibilities are shared across departments, and procedures for various inspections.
- [Miscellaneous policies, procedures, standards, and plans](#), which document how Pace operates, providing information used within this TAM Plan.

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 covers a five-year time horizon. While this is one year longer than the FTA mandated four-year time horizon, it is consistent with Pace's Capital Business Plan, and other Federal planning cycles, such as the region's 2014-19 Transportation Improvement Program (TIP) developed by the Chicago Metropolitan Agency for Planning (CMAP), the region's federally designated Metropolitan Planning Organization (MPO). In addition, the Regional Transportation Authority (RTA), which is charged with financial oversight, funding, and regional transit planning for Pace and the region's other two transit operators, the Chicago Transit Authority (CTA) and Metra, is required to prepare and adopt a Strategic Plan every five years, as mandated by the 2008 RTA Act. The RTA has also just released *Invest in Transit: the 2018-2023 Regional Transit Strategic Plan*.

Future updates to this TAM Plan will be made at least every four years, or more frequently following any major changes to the asset inventory, updated condition assessments, major investments, or revised prioritization processes. As required by the ruling, the update will coincide with the planning cycle for the development of the regional TIP, however, Pace's fiscal year begins on January 1, while the TIP coincides

with the federal fiscal year, which begins on October 1. There may be minor misalignment between updates to the TAM Plan and the annual budget due to these varying cycles, however, Pace will make appropriate updates to our TAM Plan as needed to accurately reflect committed funding and agency priorities.

TAM PLAN REQUIREMENTS

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 required that all transit agencies develop and update an Asset Management Plan¹.

The Federal Transit Administration (FTA) released the TAM Final Rule in July 2016, under 625 of Title 49 Code of Federal Regulations. Table 1 lists the requirements of FTA's TAM Final Rule and describes how the contents of this document relate to these requirements.

Table 1. TAM Plan Requirements and Section Correspondence

	49 CFR PART 625	RELEVANT DOCUMENT SECTION	PAGE NUMBER (STARTING)
Objective	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	Entire document
Definition	625.25 (3) A provider's Accountable Executive.	Accountable Executive	5
TAM Plan Core Elements	625.25 (b) A TAM Plan must include (1) An inventory of the number and type of capital assets.	Asset Inventory	19 and appendices
	(2) A condition assessment of those inventoried assets for which a provider has direct capital responsibility.	Asset Condition and Performance	20 and appendices
	(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;	Description of Analytical Processes for Investment Prioritization	32
	(4) A provider's project-based prioritization of investments,	Project-Based Prioritization of Capital Investments	35
	(5) A provider's TAM and SGR policy;	Transit Asset Management and State of Good Repair Policy	11

¹ 49 CFR 625.25 (a)

	49 CFR PART 625	RELEVANT DOCUMENT SECTION	PAGE NUMBER (STARTING)
	(6) A provider’s TAM Plan implementation strategy;	Asset Management Implementation	41
	(7) A description of key TAM activities that a provider intends to engage in over the TAM Plan horizon period;	Core Business Processes, Lifecycle Management Strategies	24, 29, and appendices
	(8) A summary or list of the resources, including personnel, that a provider needs to develop and carry out the TAM Plan; and	Organization and Resource Plan	23
	(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.	TAM Plan Update and Evaluation	41
Additional Compliance Items	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.	Investment Prioritization	32
	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.	TAM Performance Targets	22

TAM PLAN STRUCTURE

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



2. TRANSIT ASSET MANAGEMENT AND STATE OF GOOD REPAIR POLICY

The Transit Asset Management and State of Good Repair Policy defines the guiding principles by which Pace 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;

Pace's initial Transit Asset Management and State of Good Repair Policy was developed in 2018 in accordance with the FTA ruling. It is included in the following pages.

Internal Services-01

Section: CFI

Subject: Transit Asset Management Policy

I. PURPOSE

This Transit Asset Management Policy ("Policy") establishes Pace's commitment to maximizing the utilization of Pace's capital assets and establishing a cost-effective plan for long term capital investment needs while balancing service/operational needs and requirements and minimizing lifecycle costs. Transit Asset Management provides a process for performance planning and establishing the strategy for transit capital assets to be maintained in a state of good repair.

II. DEFINITIONS

The following definitions shall apply to this policy:

- A. Capital or transit asset: a unit of rolling stock such as buses and paratransit vehicles; equipment such as maintenance equipment and non-revenue vehicles; and facilities such as headquarters and the garages, with a useful life of one year or more.
- B. Lifecycle: the procurement, operation, inspection, maintenance, rehabilitation, replacement, and disposal of a capital or transit asset.
- C. Transit Asset Management ("TAM"): a set of strategic and systematic processes and practices for managing the performance, risk, and costs of transit capital assets over their lifecycle to provide safe, cost-effective, and reliable service.
- D. TAM Plan: a plan that establishes the objectives for an asset or group of assets as it relates to delivering service. It sets out the whole life plan for asset maintenance, overhaul, and renewal strategies by specifying capital asset inventories, condition assessments, decision support tools, and investment prioritization.

E. State of Good Repair (“SGR”): the condition in which a capital asset is able to operate at a full level of performance, that is, the asset can perform its designed function and does not pose an unacceptable safety risk to users.

III. ADMINISTRATION

This Policy and Pace’s TAM Plan is administered by Pace’s Internal Services Department, with input and assistance from other Pace Departments, as required.

A. TAM Plan: In accordance with Moving Ahead for Progress in the 21st Century (MAP-21), FTA grant recipients or subrecipients are required to develop a TAM Plan and to report data on their capital assets to the National Transit Database (NTD).

1. A TAM plan is a tool that aides transit providers in: (a) Assessing the current condition of its capital assets; (b) determining what the condition and performance of its assets should be (if they are not already in a state of good repair); (c) identifying the unacceptable risks, including safety risks, in continuing to use an asset that is not in a state of good repair; and (d) deciding how to best balance and prioritize reasonably anticipated funds (revenue from all sources) towards improving asset condition and achieving a sufficient level of performance within those means.
2. The TAM Plan includes: capital asset inventories, condition assessments, references to use of decision support tools, and investment prioritization. Pace’s report includes the condition of systems, a description of any change in condition since the last report, performance targets in relation to SGR performance measures, progress toward meeting performance target and subsequent fiscal year performance targets. Pace’s core TAM Plan elements are: Introduction, Asset Portfolio, Condition Assessment, Management Approach, and Work Plans and Schedules.
3. Pace’s TAM Plan is a living document that is regularly reviewed, updated, and incorporated into Pace’s capital and budget planning and reporting processes.

B. State of Good Repair

1. A capital asset is in a state of good repair when that asset is able to perform its designed function, does not pose a known unacceptable safety risk, and its lifecycle investments have been met or recovered.
2. When transit assets are not in a state of good repair, the consequences include increased safety risks, decreased system reliability, higher maintenance costs, and lower system performance.
3. The FTA’s proposed SGR performance measures, set by asset class (rolling stock, equipment, facilities), provide a basis for Pace to determine whether assets are in a condition sufficient to operate at a full level of performance. These performance measures are primarily condition based utilizing age, visual or measured condition as a measurement of performance, however, Pace considers other performance targets and measures related to service,

safety, and reliability as Pace sets performance targets annually for each asset class.

C. National Transit Database

1. The FTA mandates recipients of Federal financial assistance that own, operate, or manage capital assets used in the provision of public transportation to meet reporting requirements.
2. Pace complies with the FTA's mandate by providing an annual report to the FTA's NTD and that report contains: projected targets for the next fiscal year; condition assessments and performance results; and a narrative report on changes in transit system conditions and the progress toward achieving previous performance targets.

V. EFFECTIVE DATE

This Policy shall be in effect on the date on which it is signed by Pace's Executive Director.

Thomas J. Ross, Executive Director

Date

3. LEVELS OF SERVICE

This section of the 2018 TAM Plan establishes the relationship between Pace’s strategic goals, the customer level of service we provide and the required technical performance of our assets.

OVERVIEW

One of the basic cornerstones of good asset management practice is to align asset management activities with an agency’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 asset’s operating and capital needs to meet the customer service levels.
- Develop asset management strategies and plans to meet required performance targets.
- Monitor asset performance to ensure Pace continues to meet defined levels of service.
- Where necessary, justify additional funding requirements or justify service cut-back requirements.

SCOPE OF SERVICES

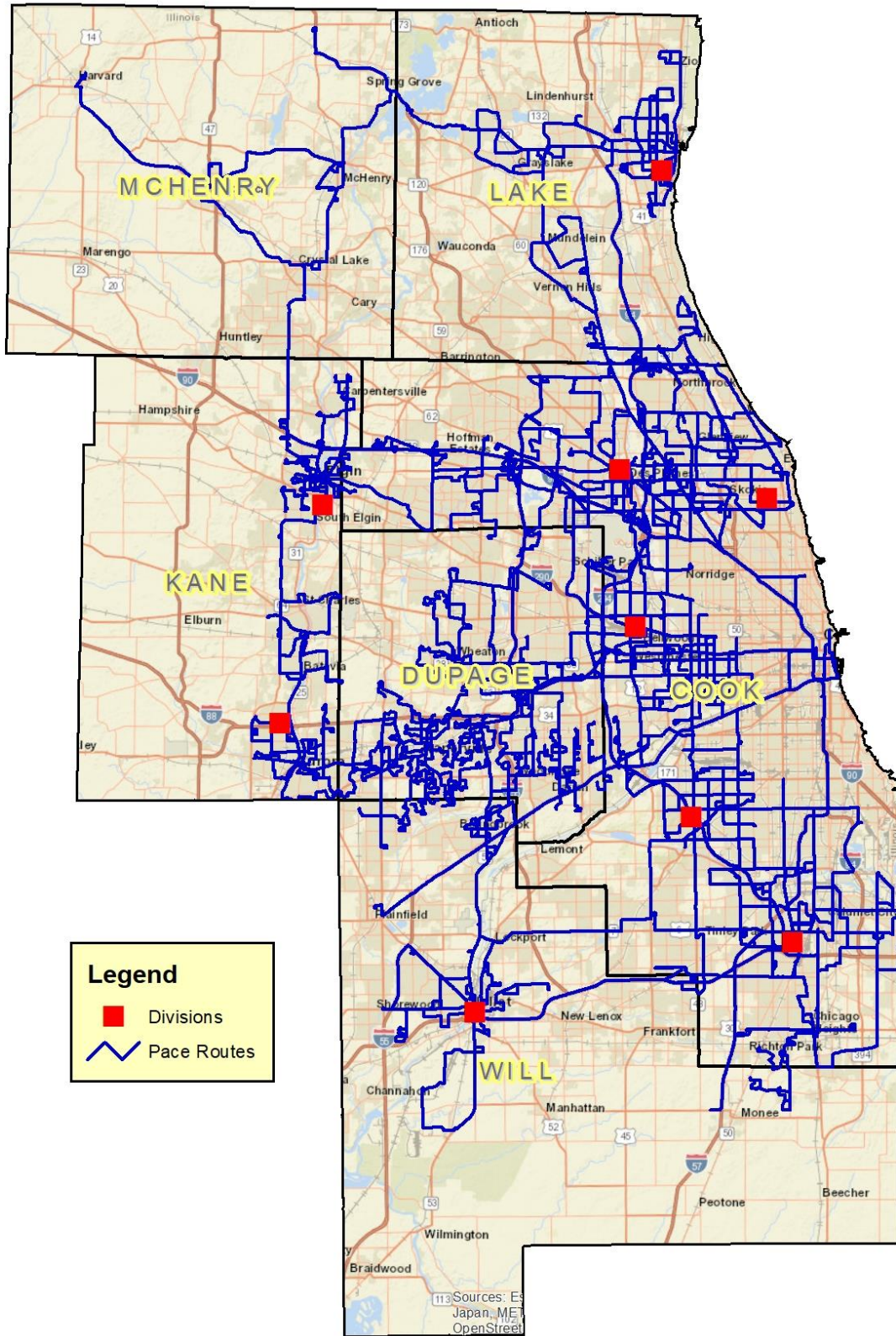
Pace operates 224 fixed bus routes (all of which are accessible to people with disabilities), as well as vanpools, dial-a-ride services, and paratransit service, providing approximately 35 million annual rides. Details of Pace’s service types are described in Table 2, below. Figure 1, shows Pace’s fixed route services.

Table 2. Pace’s Services

TYPE		DESCRIPTION
Fixed route	Pace-operated services	Pace is responsible for the direct operation of service from nine facilities in the six-county region. Together, these divisions—North, North Shore, Northwest, South, Southwest, West, Fox Valley, River, and Heritage—carry 86 percent of the total suburban service ridership.
	Public/municipal contract services	Pace contracts directly with two municipalities, Niles and Highland Park, for municipal services, and maintains an agreement with the Village of Schaumburg for fixed route services.
	Private contract services	Pace provides service to more than 48 communities by directly contracting with two private transit companies.

TYPE	DESCRIPTION
ADA Paratransit	<p>The major components of the ADA program consist of city ADA services and suburban ADA services. Service delivery under both programs is contracted to private service operators. In addition to the city and suburban cost elements, there are regional support costs which represent the indirect overhead costs of supporting the Regional ADA Paratransit Program, which is overseen by Pace. Pace provides all ADA service within the City of Chicago and the suburbs, primarily through private contractors. Pace is also responsible for the provision of subsidized taxi service to ADA eligible riders in the City of Chicago through the Taxi Access Program (TAP). This program provides subsidized taxi service to ADA eligible riders.</p>
Community Transit / Dial-a-Ride	<p>Pace partners in 68 dial-a-ride service projects throughout the six-county region. Services are operated by townships or local municipalities under contract with Pace or directly by private providers. Pace provides funding for these services based on a formula applied to the total service cost. The local government is also required to contribute a portion of the service cost. Additionally, Pace oversees the Community Transit Program, which allows local municipalities to provide flexible public transportation in their communities.</p>
Vanpool	<p>The vanpool program serves groups of five to fifteen people who commute to and from work together in a Pace-owned van. In 1994, the Advantage element was added providing a transit alternative to individuals who commute on a regular basis to work sites or rehabilitative workshops. In 1997, the Employer Shuttle element was created to allow suburban employers to shuttle employees to and from nearby transit connections. Pace expects this program to have 584 vans in service by the end of 2018.</p>

Figure 1: Pace and Other Regional Service Map



SERVICE STANDARDS

Pace abides by service guidelines set to ensure that service features comply with FTA circular 4702.1B (regarding requirements related to Title VI of the Civil Rights Act of 1964). The guidelines indicate that:

- Vehicle Load for most fixed bus routes should not exceed an average maximum vehicle load of 125% during peak hours and 100% during off-peak hours. For express operations, average maximum vehicle load should not exceed 100% for both peak and off-peak hours.
- Maximum service headway on Pace's fixed routes is to operate 60 minutes or better at all times of the day (unless the route has a minimum trip based headway standard then minimum number of trips applies).
- Pace's on-time performance goal for all fixed route service is 75%, where a bus is on-time if it is no more than one minute early and no more than five minutes late.
- For fixed route buses, bus stop locations are dependent on safety considerations, ease of operation, pedestrian transfer situations, space availability, traffic operations, and location of activity generators.

These standards guide Pace's service planning and scheduling, but Pace is permitted to deviate from these standards where conditions merit. Some routes with especially strong demand may justify service beyond these standards, while others may have special circumstances that justify the opposite.

Service levels are aligned to a set of core goals, set out in the annual budget and used by Pace to drive improvement.

SERVICE MEASURES

As part of our annual budget, Pace has established agency-wide performance goals which support the core business purpose of providing excellent public transportation service. The goals are to provide public transportation that is:

- Safe
- Reliable
- Courteous
- Efficient
- Effective

Table 3 identifies the measures and performance standards that Pace has established for each goal.

Table 3. Pace’s Strategic Goals and Performance Measures²

GOAL	PERFORMANCE MEASURES	PERFORMANCE GOAL
Provide Safe Public Transportation Services	Accidents per 100,000 miles	< 5
Provide Reliable Public Transportation Services	On-time Performance	> 85%
	Actual Vehicle Miles per Road Call	> 14,000
	Percent Missed Trips Per Total Miles	< 0.5%
Provide Courteous Public Transportation Services	Complaints per 100,000 passenger miles	<4
	Website Hits on Web Watch Site	Increase over prior period
Provide Efficient Public Transportation Services	Revenue Miles per Revenue Hour	> 17
	Revenue Miles per Total Operator Pay Hours	> 10
	Expense per Revenue Mile	< \$6.50
	Expense per Revenue Hour	< \$125
	Recovery Ratio	> 18%
	Subsidy per Passenger	< \$4
Provide Effective Public Transportation Services	Ridership	Increase over prior period
	Passenger Miles per Revenue Miles	> 9
	Productivity (passengers per revenue hour)	> 24
	Ridership per Revenue Mile	> 1.5
	Vanpool Units in Service	Increase over prior period

² Pace Suburban Bus. *Suburban Service and Regional ADA Paratransit Budget: 2019 Operating and Capital Budget; 2019-2021 Business Plan for Operations; 2019-2023 Capital Business Plan*. Proposed Program, October 2018, p76.

4. ASSET INVENTORY

Pace’s robust portfolio of assets enables transit service across 3,446 square miles. Pace owns or has partial capital responsibility for 2098 revenue vehicles, as well as 12 maintenance and administration facilities, and 48 passenger facilities. Pace’s assets are operated throughout Northeast Illinois, in the City of Chicago and the counties of Cook, DuPage, Kane, Lake, McHenry, and Will.

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 Pace’s asset inventory is provided in Table 4, below, by asset class. Additional information for each asset class can be found in the appendices.

Table 4: Pace Asset Inventory as of 12/31/2017

			
Rolling Stock (Revenue Vehicles)	Support Facilities and Equipment	Stations and Passenger Facilities	Electrical, Signal, and Communications
<ul style="list-style-type: none"> ▪ 780 Fixed Route Buses ▪ 501 Paratransit Vehicles owned by Pace ▪ 775 Paratransit Vehicles owned by others ▪ 695 Vanpool Vehicles ▪ 122 Community Transit Service Vehicles 	<ul style="list-style-type: none"> ▪ 12 Maintenance and Administration Facilities owned by Pace ▪ 23 Maintenance and Administration Facilities owned by others ▪ 171 Non-Revenue Vehicles <ul style="list-style-type: none"> ○ 136 Cars/SUVs ○ 35 Trucks ▪ Farebox System 	<ul style="list-style-type: none"> ▪ 26 Boarding and Turnaround Facilities ▪ 12 Transportation Centers ▪ 29 Park-n-Ride lots (10 owned by Pace, 19 owned by others) 	<ul style="list-style-type: none"> ▪ Radio System ▪ Automated Vehicle Location (AVL) System ▪ Intelligent Bus System (IBS) ▪ Transit Signal Priority (TSP) System ▪ DriveCam On-Bus Security System

ASSET CONDITION AND 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.

625.55 Annual reporting for transit asset management. (a) Each provider must submit the following reports: (1) An annual data report to FTA's National Transit Database that reflects the SGR performance targets for the following year and condition information for the provider's public transportation system.

(2) An annual narrative report to the National Transit Database that provides a description of any change in the condition of the provider's transit system from the previous year and describes the progress made during the year to meet the performance targets set in the previous reporting year.

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

CONDITION RATING METHODOLOGY

In accordance with the TAM Final Ruling, Pace has begun utilizing the condition metrics that will be required reporting for the National Transit Database (NTD), and will be used to measure performance against targets.³

Table 5 describes the condition rating method required by the FTA and used by Pace.

Table 5. Condition Rating Methods

ASSET CLASS	CONDITION RATING METHOD
	TAM NTD
Rolling Stock	Age-based, % of useful life
Non-Revenue Vehicles	Age-based, % of useful life
Maintenance and Admin Facilities	Quadrennial inspections, 1-5 rating
Stations and Passenger Facilities	Quadrennial inspections, 1-5 rating

³ Condition data for some facilities may only be reported to NTD if they meet certain criteria (e.g., any maintenance or administration facility under 100 square-ft. does not need to be included (e.g. security guard shack, stand-alone restroom, storage shelter in which no work is performed) in either of your inventories) defined by FTA including minimum floor area and whether Pace has direct capital responsibility.

The scores above are based on the FTA-defined condition rating levels, as shown in Table 6.

Table 6. Condition Rating Levels

CONDITION	DEFINITION
5 (Excellent)	No visible defects, new or near new condition, may still be under warranty if applicable
4 (Good)	Good condition, but no longer new, may have some slightly defective or deteriorated component(s), but is overall functional
3 (Adequate)	Moderately deteriorated or defective components; but has not exceeded useful life
2 (Marginal)	Defective or deteriorated component(s) in need of replacement; exceeded useful life
1 (Poor)	Critically damaged component(s) or in need of immediate repair; well past useful life

Facility Condition Assessments 2018

From 2018 Pace has commenced assessing condition of our facilities using the FTA guidance document for facilities condition assessments. As per the guidance Pace intends to assess at least one-quarter of our facilities each year, completing assessments of all facilities on a four-year cycle. Pace has contracted with WSP to complete these.

The condition scores collected prior to September 2018 will remain in place for facilities not yet assessed using the new methodology. As the remaining facilities are assessed in the coming four years those older scores will be replaced. The older scores use the same TERM scale detailed in Table 6 but the scores were based on a different breakdown of sub-assets within each facility and summed using a different calculation.

In 2018 nine facilities were inspected, as listed in Table 7 below. Each facility was scored using “TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation”, issued by the FTA, as the primary source for inspection and grading methodology. The Guidebook relies largely on visual inspection, and in cases of difficult to access areas, it relies on visual inspection from an access point. The Guidebook requires condition scores be given to 10 building systems in each facility, which are summed into a single score for each facility using a calculation method at the discretion of the agency. Pace has used a bespoke weighting system based upon the criticality of those 10 building systems to delivery of customer service. To record grades and notes, the inspector utilized a grading sheet similar to that available in the Guidebook, but modified to allow more room for notes.

Table 7: Condition Scores for Facilities Assessed in 2018

ASSET NAME	CONDITION RATING (PRIOR TO 2018)	CONDITION RATING (2018)	COMMENTS ON DIFFERENCES
Transportation Centers			
Buffalo Grove Transportation Center (PNR)	2	3	Recent refurbishments to half of the property increased the overall score up a grade and brought into a State of Good Repair
Gurnee Mills Transportation Center	1	2	Scores very slightly increased and rounding brought score up a grade

ASSET NAME	CONDITION RATING (PRIOR TO 2018)	CONDITION RATING (2018)	COMMENTS ON DIFFERENCES
Prairie Stone Transportation Center	2	3	Scores very slightly increased and rounding brought score up a grade
Park-n-Ride Lots (Pace Owned)			
Bolingbrook - Old Chicago PNR	4	3	Some improvements but wear is apparent
Bolingbrook - Canterbury PNR	2	3	Site is worn but repairs have extended the life and brought into State of Good Repair
Burr Ridge PNR	2	2	(score unchanged)
Elk Grove PNR	4	3	General wear over time to much of site
I-90/Randall Road PNR	5	5	(score unchanged)
I-90/IL-25 PNR	5	5	(score unchanged)

Note: These scores are preliminary only and may be adjusted upon review before submitting the NTD FY2018 report in early 2019.

TAM PERFORMANCE TARGETS

In compliance with the TAM Final Ruling, Pace has identified our performance targets for 2018, shown in Table 8. The Rolling Stock and Equipment targets and current minimum Useful Life (UL) have been revised to reflect the FTA's Grant Minimum Useful Life.

Table 8. 2018 Targets

ASSET CLASS	ASSET TYPE (UL YEARS)	ACTIVE FLEET* (1/1/2018)	PAST UL (1/1/2018)	ADDITIONAL PAST UL (12/31/2018)	TOTAL REPLACEMENTS (2018)	PROJECTED PAST UL (12/31/2018)	2018 TARGET
Rolling Stock	Fixed Route Buses (12)	780	20%	31	70	116	15%
	Paratransit (4)	501	40%	253	212	240	48%
	Community Transit (4)	122	61%	20	11	84	69%
	Vanpool (5)	695	28%	240	151	283	41%
Equipment	Non-Revenue Fleet (5/10)	171	53%	20	13	98	57%
ASSET CLASS	ASSET TYPE	QUANTITY (1/1/2018)	CONDITION LESS THAN 3 (1/1/2018)	NEW CONSTRUCTION (2018)	QUANTITY (12/31/2018)	2018 TARGET	
Facilities	Passenger Stations	3	33%	0	3	33%	
	Passenger Parking	22	50%	2	24	46%	
	Maintenance and Administrative	12	33%	0	12	33%	

* Excludes legal holds, contingency, vehicles in process of disposal, and new vehicles received but not yet put in service.

Updated versions of this Transit Asset Management Plan, will include a one-year 'look-back' review (which will appear in Appendix A as the NTD Narrative Report) with commentary on identified performance issues and proposed plans for addressing problems.

5. ASSET MANAGEMENT ENABLERS

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

OVERVIEW

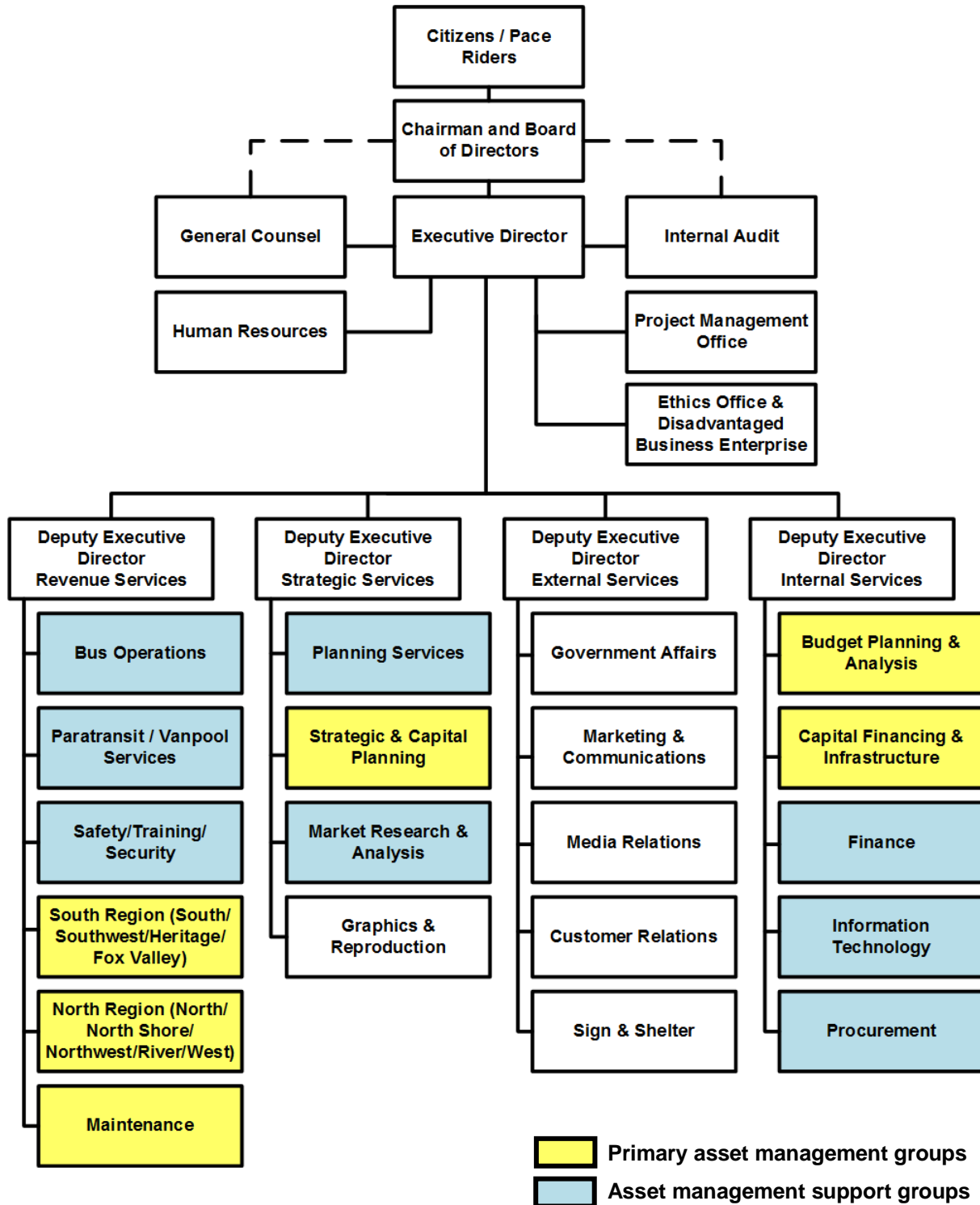
This section describes the organization of Pace, including the roles and responsibilities for asset management, and the resources that will be needed to carry out the activities outlined within this plan. It also covers the core business processes in place to assist and guide Pace in delivering Asset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

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

Pace's Executive Director is the Accountable Executive for Asset Management, and is responsible for ensuring that this TAM Plan is developed and carried out. Pace also has a Capital Infrastructure Program Manager and a Transit Asset Management Coordinator who are located in the Capital Financing and Infrastructure group and are responsible for day-to-day activities related to TAM. Individuals from many other departments throughout Pace have been involved in the development of this TAM Plan, through participation in workshops and provision of relevant data and information, and will continue to play an important role in managing Pace's assets. The following organization chart (Figure 2) depicts asset management responsibilities at Pace.

Figure 2. Asset Management Organization



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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 Pace’s ability to develop and implement TAM activities. Table 9 depicts the existing key asset management processes and identifies future improvement initiatives. The processes are grouped according to the eight pathways against which Pace was assessed: alignment to organizational goals; control of assets; asset management planning; capital planning and delivery; maintenance planning and delivery; operations and incident management; informed decisions; resource capabilities.

Table 9: Core Business Processes

CORE BUSINESS PROCESS GROUPS	DESCRIPTION
Alignment to Organizational Goals	
<i>Strategic Planning</i>	Pace developed our long-term strategic plan, <i>Vision 2020</i> , in 2001, and an update (<i>Vision 2040</i>) is currently under development. <i>Vision 2020</i> has guided many of Pace’s actions over the past twenty years, and <i>Vision 2040</i> is expected to do the same over the next twenty. Shorter-term planning is represented in Pace’s annual budget, which sets out annual goals and an outline of how Pace will achieve them.
<i>Service Planning and Scheduling</i>	Pace’s Service Planning and Scheduling group (within the Strategic Services department) makes service changes throughout the year, typically coinciding with operator run picks. Approximately 140 service changes are made per year, and these changes are tracked in a spreadsheet. Schedulers use HASTUS to develop operator work schedules.
Control of Assets	
<i>Asset Risk Management</i>	Failure rates are tracked and used to estimate required spares ratios to mitigate risk. In addition, plans are in place (and regularly used) to mitigate the effects of weather-related risks on service.
<i>Performance Management</i>	Pace’s annual budget includes several performance measures, each of which ties to one of Pace’s five primary strategic goals (safety, reliability, courtesy, efficiency, and effectiveness). Quarterly board reports measure ridership, complaints, and accidents. Individual departments also regularly track metrics relevant to their assets, such as fuel consumption.
<i>Audit and Assurance</i>	Pace has a robust internal audit process involving all managers from across the agency. As part of the audit process, Pace administers a Controls Self-Assessment which asks managers to rate the effectiveness of all business processes on a scale of 1-5. Processes rated below a 3 are investigated by Internal Audit to better understand why, and may be candidates for more in-depth audit projects. Internal Audit develops an audit plan for the year based on the results of the Controls Self-Assessment.
<i>Safety and Hazards Management</i>	Pace’s Safety Training/Security department and Bus Operations department work together to promote safety across Pace. A Safety Manager at each division is responsible for conducting monthly walkthroughs to identify any safety risks/hazards.
Asset Management Decision Making	
<i>Asset Management Plans</i>	This document represents Pace’s initial Asset Management Plan, establishing a baseline on which future iterations will build. Processes for updating the Plan are included in the TAM Plan Update and Evaluation section.
<i>Asset Strategies</i>	Lifecycle strategies for Pace’s assets have been formalized as part of this plan, building on existing practices.

CORE BUSINESS PROCESS GROUPS	DESCRIPTION
Capital Planning and Delivery	
<i>Capital Expenditure Evaluation</i>	Pace has an established and documented evaluation process, which has been in place since 1991 and has been adjusted over time to incorporate lessons learned and reflect changing priorities (see Investment Prioritization section of this plan for more detail).
<i>Capital Program Development</i>	To develop the annual capital program, Pace department managers and senior staff are required to fill out forms detailing their capital requests, which are then scored by an Evaluation Committee of an agreed upon size, appointed by the Executive Director or the Department Manager, Budget Planning and Analysis. The Budget Department provides score information to senior staff who decide which projects to include, in coordination with Pace's Board of Directors, who must ultimately approve the capital program.
<i>Quality Management</i>	Pace controls for quality by having Pace Project Managers onsite during construction to monitor work and ensure that products are installed per plans and specifications, and that contractor submittals reflect actual work completed. A contract administrator completes all necessary paperwork.
<i>Asset Handover and Transitioning</i>	Pace's asset commission and handover processes include ensuring that required materials and documentation have been received, including warranties, manuals, waivers, etc.
Maintenance Planning and Delivery	
<i>Maintenance Planning and Definition</i>	Pace has many policies/plans, including those related to maintenance. Maintenance delivery strategies/plans and maintenance manuals are reviewed on an as needed basis, including when new assets are delivered or changes are made.
<i>Inventory Management</i>	Pace seeks to optimize inventory holdings by tracking minimum and maximum quantity levels, which are set based on historical data and formulas related to per diem usage. Obsolescence of equipment is also considered; when a bus fleet is nearing retirement, Materials Management begins ordering parts on only an as needed basis. Inventory requirements (including min/max quantities, current stock, stock ordered, and lead time) are available in Oracle.
Operations and Incident Management	
<i>Operations Management</i>	Pace has standard operating procedures in place for many assets, and in some cases, these also cover atypical operation (e.g., during special events or weather events). Pace has processes in place for re-routing as a result of weather, construction, traffic incidents, or other events that make a normal route impractical. Specific alternative routes are defined in advance and provided to the public to limit inconvenience.
<i>Incident Management</i>	The Safety and Bus Maintenance departments conduct investigations of incidents involving Pace-owned vehicles. The Safety department talks to witnesses and reviews video from any nearby cameras, while Bus Maintenance examines the bus. Investigations conclude with recommendations on how to avoid similar incidents in the future, and Pace works with local authorities as needed to implement the recommendations.
<i>Business Continuity Planning</i>	Pace has built redundancy into our systems to reduce the likelihood of service disruption. For example, there are contingency plans for recovery for each facility, and a back-up facility assigned in case a center goes down. The South division also has a 24-hour dispatch center that can pick up for other divisions if needed. Pace employs a mass-calling app ("Call-em-all"), allowing all staff to be reached quickly in case of an emergency.
Informed Decisions	
<i>Asset Cost Capture</i>	Maintenance cost information associated with fixed route vehicles and facilities can be retrieved and reported by activity/job type per asset through Pace's Oracle eAM system.

CORE BUSINESS PROCESS GROUPS	DESCRIPTION
<i>Asset Information</i>	Pace's asset information is primarily stored in two different Oracle systems: Fixed Assets and eAM. These systems include fields for asset information including size, material, installation date, model, mileage, etc. In eAM, Pace can manually pull up information on asset inspections and work activity histories.
Resource Capabilities	
<i>Training</i>	Pace staff receive necessary training for working with assets, either via the Training Coordinator, within Executive Services, and/or by user departments. Manufacturers also provide training on new fleets.
<i>Supplier Management</i>	Pace's processes for selecting contractors allow for the consideration of other factors beyond cost (at least for some project types and sizes). To monitor contractor quality, Pace visits contractor sites to ensure compliance with requirements. In addition, Pace can restrict vendors from bidding, either indefinitely or temporarily, due to severe performance issues.

CORE ASSET MANAGEMENT SUPPORT SYSTEMS

Pace utilizes several support technologies/systems to store information about our assets, which we rely on to make informed decisions. Table 10 describes Pace's core support systems, and planned actions for improvement.

Table 10: Core Support Systems

SYSTEM	DESCRIPTION	DEPARTMENT
Oracle EBS	Oracle EBS Suite 12.1.3 Fleet maintenance software used for fixed route vehicles maintained by Pace. Maintenance of paratransit, vanpool, and non-revenue fleet is not recorded in Oracle EBS but in contractor hosted solutions.	Maintenance
Oracle eAM	Costs (including labor and materials) are tracked at the individual vehicle level within Oracle eAM, which also contains additional vehicle information, such as fuel and fluid consumption (imported from Fleetwatch), mileage, and maintenance history.	Maintenance
Oracle APEX	Applications for Fixed Assets, Vanpool Management, Farebox (Revenue Collection), Bus Operations, and Safety Training	Safety/Training/Security, Bus Operations, Paratransit/Vanpool Services, Finance, Administration
Microsoft Office 365 (Excel and Access)	HR planning is done within Excel, not in a separate HR system (e.g., Hyperion). All departments use Microsoft Excel and Access for data storage and processing.	All
Trapeze	Used for scheduling and operations for paratransit. Paratransit Operations uses Trapeze to track service-related issues and performance measures. Paratransit contractors have their own communications system, using Motorola radios that were updated to use Trapeze. There are no interfaces between Oracle eAM and Trapeze.	Paratransit Operations
Intelligent Bus System (IBS)	Fixed route uses IBS (Intelligent Bus System), a satellite based communications technology, to improve the tracking of buses, collection of data, and communication between Pace and our drivers and passengers. IBS interfaces with Trapeze.	Fixed Route Operations, Safety/Training/Security

SYSTEM	DESCRIPTION	DEPARTMENT
ArcGIS	ArcGIS is a geographic information system (GIS) that allows the spatial visualization of data along with the capability of tabular data to be mapped and analyzed. GIS uses spatial and statistical methods to analyze and attribute geographic information. ArcGIS is used for long-range planning, service planning, and route visualization.	Strategic and Capital Planning, Service Planning, Operations
Oracle Core-HR	An Oracle module used by Human Resources to information such as organization, location, job, position, grade, and more.	Human Resources
Hastus	Schedulers use a program called Hastus for scheduling different “work pieces” that need to be assigned to the different departments. Hastus provides access to on-time performance, vehicle statistics, labor needs, etc. Data is exported from Hastus to external apps like Google transit and shared with the Service Analysis group.	Planning Services
Fleetwatch	Third party fuel and mileage monitoring system	Operations
RidePro	RidePro is a mobile-friendly commuter management software used to manage Pace’s RideShare program. Commuters can access information about Pace Vanpooling, including newly forming vans and open seats in existing vans, carpooling, and other alternative commuting services. The software includes reporting, analysis, and dashboard features.	Strategic Planning / RideShare
Farebox System	In 2017, Pace hired IBI Group to review existing on-board and garage Farebox infrastructure to recommend a way-forward strategy that may include refurbishment or replacing the Farebox System. The IBI study included a review of existing Farebox asset inventory, operations and maintenance procedures, and pertinent issues and needs for improvements. The data collected contributed to a comprehensive needs assessment of the existing Farebox system environment. These high-priority needs included better access to data, reduction in maintenance costs, and a reduction in system failure risk. The Farebox System replacement is programmed in the Pace Five-Year 2019-2023 Capital Program (see Section 7, Investment Prioritization).	Operations
DriveCam	All Pace buses are equipped with constantly recording internal security cameras and DriveCam technology that enables external recording of eight minutes before and after incidents. These technologies promote safety of passengers and drivers, and enable Pace to identify driver behavior that may pose a safety risk.	Operations

6. 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 Pace's assets are functional, reliable, and are able to continue to support a safe, reliable, courteous, efficient, and effective regional operation.

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;

During the development of this TAM Plan, the lifecycle strategies for all major assets were reviewed by Pace staff and their consultant, WSP. The purpose of this initial TAM Plan is to develop the long-term maintenance and improvement program which will enable Pace to continue to maintain a State of Good Repair. Building on the work previously done by Pace in coordination with the Regional Transportation Authority (RTA), the Capital Asset Condition Assessment Project represents the culmination of many years' work to define Pace's capital needs to meet current and future demands.

The lifecycle management strategies laid out in the asset plans in the appendices to this document begin to define Pace's approach to asset management. Lifecycle strategies may be similar for asset classes where commonalities exist, such as rolling stock and non-revenue vehicles, however, the lifecycle management strategies for each asset class are unique. The current strategy for each asset class is presented in the appendices – and a general overview of lifecycle management practices is presented in this section.

CURRENT LIFECYCLE MANAGEMENT STRATEGIES

Pace's core objective is to provide a safe, reliable, courteous, efficient, and effective suburban bus service. Pace currently employs a variety of lifecycle management strategies to achieve this objective which are detailed in the asset plans in the appendices of this document. Pace'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, preventative 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.

- **Preventative 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.
- **Disposal** to ensure compliant, efficient, cost-effective retirement of assets.

ACQUISITION

Funding for acquisition is determined through the capital program development process, which is based on a well-developed capital project prioritization methodology. For asset acquisitions, property and equipment are recorded at historical cost. Pace capitalizes assets with a useful life of one year or more that is:

- a. Capital equipment
- b. Operation equipment with a unit cost of \$5,000 or more
- c. Costs incurred to extend an asset's useful life as part of a fleet enhancement or major rebuild/rehabilitation program, or
- d. An item determined to be highly susceptible to loss or theft

Most of Pace's assets have been acquired through capital grant projects funded by FTA, IDOT, and the RTA. Fixed Route buses, paratransit buses and vans are set up in the fixed asset system based on their in-service date. When expanding or changing the revenue fleet, Strategic Services works with the Budget group to provide information on planned expansions or other plans. For equipment, replacements are typically made once equipment becomes unreliable. Equipment procurement is done by Facilities Maintenance when a simple replacement occurs, but it is possible for the Design / Construction group to handle the asset acquisition, depending on the scope of work. The process for asset acquisitions can be found in the FI-05, Fixed Assets Policy.

MAINTENANCE

Pace has a detailed *Rolling Stock, Facilities, and Equipment Maintenance Manual* prescribing planned maintenance for the agency's assets, as well processes to ensure contractor quality and completion, and strict guidelines for disposal of assets. Pace's Maintenance and Technical Services Department is responsible for managing and maintaining buses throughout their lifecycle, while maintenance and repair of other vehicles are conducted by contractors at regular vehicle maintenance shops throughout the region. Facilities Maintenance typically manages the smaller assets and programs that are relevant to the equipment asset category.

Inspection/Monitoring

For facilities and stations, inspections are recorded and tracked by Facilities Maintenance on a biannual basis. Division staff conduct inspections of facilities more frequently, and staff at South Holland conduct monthly inspections of passenger facilities. For rolling stock, each driver is required to perform a pre-trip inspection of their

rolling stock prior to pullout. Documentation of inspections are recorded on hardcopies, and any noted defects are entered into Oracle eAM. In-addition to pre-trip inspections, in-service rolling stock is serviced daily and ensured by the Maintenance Superintendent.

Preventative Maintenance

Pace's maintenance manual prescribes frequencies by which many different assets are inspected. This preventative maintenance ensures that Pace's assets remain safe and reliable to operate. Preventative maintenance for rolling stock includes the inspection of the rolling stock, scheduled oil changes, lubrication, adjustments, service, and repairs that are performed during the inspection/servicing and documented on the appropriate forms. The Preventative Maintenance Inspection (PMI) forms and the Lift-U Preventative Maintenance are performed under a work order by an assigned mechanic at the scheduled mileage intervals.

Corrective Maintenance

Some maintenance at Pace is reactive, performed in response to defects identified during the course of routine inspection, preventative maintenance, or reported by field staff. When possible, defects are corrected in short order by Pace staff. Pace also has contracts with third party vendors to complete corrective maintenance as needed.

OVERHAUL/REHABILITATION

Buses receive rehabilitations at mid-life, which are performed by contractors. Facilities may also receive extensive rehabilitation when condition warrants it. Other assets are replaced rather than overhauled. These processes are identified in *Facility Maintenance Plans and Practice Overview and Procedures for Inspections and Rolling Stock, Facilities, and Equipment Maintenance Manual* (June 2016).

DISPOSAL

At Pace, an asset is disposed of if it has exceeded its useful life and is no longer needed or functioning, or has been damaged or destroyed before the end of its useful life. When disposal is necessary, an Asset Disposal Form is completed by the division or department that holds or is responsible for the asset. The form is submitted to Accounting and the Fixed Asset Accountant reviews the asset to determine if there is any remaining useful life. If there is, then that is noted on the form. The form is then reviewed and approved by the Section Manager, Accounts Payable/Receivable and also the Section Manager, Grants Administration if the asset is capital funded. The Fixed Asset Accountant determines whether an asset should be disposed of by the Using Department or sold by the Purchasing Department. The Purchasing Department is responsible for obtaining payment for the sale of an asset, and forwarding those funds directly to the Finance Department. If the proceeds from the asset exceed a certain dollar value or have remaining useful life, then Capital Financing and Infrastructure will coordinate repayment to the funding agency and obtain concurrence. Pace has an agreement with the FTA that allows Pace to retain all funds due back to the FTA, with the assurance that Pace acquire new assets with the funds and give the FTA 100% equity in those assets.

7. INVESTMENT PRIORITIZATION

Since 1991, the Pace Capital Project Scoring Criteria has been in place and has been adjusted occasionally during annual budget cycles to accommodate funding limitations and changing agency priorities.

625.25 (b) A TAM Plan must include: (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; (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.

DESCRIPTION OF ANALYTICAL PROCESSES FOR INVESTMENT PRIORITIZATION

Pace's Investment Prioritization method aligns with our Capital Project Scoring Criteria, and the process currently used to select projects during the annual budget cycle. It is Pace's intent to align our Five-Year Capital Program with our Investment Prioritization forecast whereby exceeding the FTA requirement of updates to the overall TAM Plan every four years.⁴ The Executive Director or the Department Manager, Budget Planning and Analysis will appoint an Evaluation Committee of an agreed to size.

Pace's capital planning process begins with the RTA's Budget Call. The Capital Team sends out instructions and 13 forms—some with subsets for different dollar thresholds representing different asset classes—to senior staff and relevant department managers, who are required to return them with their capital requests by a predetermined deadline. Supplemental documents are required as support for certain capital requests, including fleet plans for vehicle requests.

The Budget Planning and Analysis Department collects, compiles, and catalogs all complete requests. The Budget team implements a scoring process across all the

⁴ FTA Transit Asset Management Final Rule, Vol. 81, No. 143, July 26, 2016

projects. A version of this process has been in place since 1991, though it has been adjusted over the years to incorporate lessons learned and reflect changing priorities.

Capital projects not selected for year-one may be included in years two through five, however, projects not selected must be resubmitted for consideration every year, and there are no implicit or explicit agreements that a project that does not make it into the plan one year will be prioritized the following year. All submissions are reevaluated and reprioritized every year.

Budget Planning and Analysis staff meet with Senior staff to present recommendations/information from the scoring process and to allow Senior staff to make informed decisions. The prioritization scores are only one factor in the decision process. Another factor may be funding sources, which restrict how money can be spent and must be matched appropriately to specific projects. For example, Pace used an RTA ICE grant for innovative projects to support the IBS system. Based on the feedback received from Senior staff, the proposed budgets are updated.

Next, Senior staff and the Budget team introduce the draft Capital Program to the Pace Board Chairman and Directors for a review and comment period in late August/early September prior to public budget introduction at the September Board meeting. A formal budget presentation occurs at the October Board meeting before Pace holds mandated public hearings throughout the six county Northeastern Illinois region. The budget information is made available at most public libraries, township, city, and village offices and on the Pace website. After consideration of input from the public process, the final proposed program is approved by the Pace Board in November. The proposed Capital Program is submitted to RTA in October followed by the final Capital Program in November. The RTA Board adopts the consolidated regional budget and Capital Program in December.

INVESTMENT PRIORITIZATION PROCESS

YEAR ONE

Within each asset category reside individual asset class projects which are scored by pre-determined criteria and scoring ranges assigned to achieve a maximum of 39 total points in year one. Each of the evaluators' scores are averaged to produce an overall asset category score to assign a ranking within the year-one program.

After the evaluation of projects, Budget staff prepare a draft recommended project list and submit it to Senior staff for review and comment. Recommended projects are tied to available funding as established by the Regional Transportation Authority (RTA) Marks which are adopted no later than the September 15 statutory funding deadline.

YEAR TWO THROUGH YEAR FIVE

Years two through five are approached as an overarching strategic framework for the future direction of potential projects outside of the annual program. The investment prioritization framework is goal-orientated and objective-based in the out-years because it is dependent on the RTA receiving the fully apportioned regional federal grant estimates along with each Service Board receiving potential discretionary funding. Each program year needs to balance to the RTA Five-Year Capital Program Funding

projections (Marks). Listed below is an overview of the current year two through year five prioritization process.

Decision Support Tool Steps:

- Define Unconstrained needs
- Enter the RTA Marks
- Reduce quantities/remove projects (to balance to the RTA marks) based on:
 - Scoring
 - Funding type (restrictive by scope/capital eligibility)
 - Available Staff Resources/Project timelines (phasing)
 - Dependencies on other projects (sequencing)
 - Historical funding levels, trends, or forecasts

Lastly, additional criteria for years two through five may be vetted during this initial effort and incorporated over the course of the TAM Plan horizon period.

INVESTMENT PRIORITIZATION CRITERIA AND SCORING RANGES

The following criteria are used by the Budget Team during the scoring phase of the capital project prioritization process:

1. RIDERSHIP

Each passenger counted each time that person boards a transit vehicle.

Score Range: 0-2

0 = Negative	1 = Neutral	2 = Positive
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2. RECOVERY RATIO

Operating revenues divided by operating expenses to calculate a percentage that measures efficiency.

Score Range: 0-2

0 = Negative	1 = Neutral	2 = Positive
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3. PASSENGER BENEFITS

Improvements to Safety; Service Reliability; Capacity; Passenger Comfort and/or Convenience; Accessibility.

Score Range: 0-5

Each of the criteria can be awarded up to one point.

4. NEW, NORMAL REPLACEMENT, REHABILITATION, URGENT

New is defined as an asset that is not currently in the inventory (i.e. not a replacement). Normal Replacement is ongoing replacement of existing assets as they reach the end of their expected useful life. Rehabilitation is ongoing rehabilitation needs for existing

assets as required to maintain a State of Good Repair (SGR). Urgent is an asset that is well beyond its useful life or is adversely affecting daily operations.

Score Range: 0, 9, or 10

0 = New	9 = Normal Replacement	9 = Rehabilitation	10 = Urgent
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5. PRIOR OR PROGRAMMED COMMITMENT

A Prior Commitment is a project committed to by a previous funding source that may require additional funding in the current and/or out years. A Programmed Commitment is a high-level agency commitment which may include, but is not limited to, Intergovernmental Agreements (IGA) or contracts with other entities.

Score Range: 0 or 10

0 = Not a Prior or Programmed Commitment	10 = Prior Commitment	10 = Programmed Commitment
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6. SAFETY/SECURITY, MISSION CRITICAL, OR REGULATORY

An internal project that addresses Safety/Security concerns or to comply with the Department of Homeland Security (DHS), Federal Emergency Management Agency (FEMA), or the Illinois Emergency Management Agency (IEMA). A Mission Critical asset or initiative is essential to the daily business operation to minimize disruption or shutdown. A Regulatory mandated project is to comply with federal/state regulations, municipal code, or current industry standards such as the Environmental Protection Agency (EPA) or the Americans with Disabilities Act (ADA).

Score Range: 0 or 10

0 = Not Safety/Security, Mission Critical or Regulatory	10 = Safety/Security	10 = Mission Critical	10 = Regulatory
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PROJECT-BASED PRIORITIZATION OF CAPITAL INVESTMENTS

Due to the timing of the annual budget process, Table 11 summarizes Pace’s proposed five-year capital program priorities by asset class, as of September 2018. More detail can be found in the appendices.

Pace’s capital program balances the needs of many different user groups and asset classes. Major projects funded over the coming five years include:

- *Acquisition of fixed route buses, paratransit vehicles, CTS vehicles, and vanpool vehicles*
- *A new Northwest Division Garage*
- *Support facilities improvements, and preventative maintenance for support facilities and equipment*
- *Passenger facility improvements, including specifically at Joliet Transit Center*

Table 11: 2019-2023 Capital Program Priorities (\$000s)

ASSET CLASS	PROJECT	2019	2020	2021	2022	2023	5 year 2019-2023
Rolling Stock	30' Fixed Route Buses	\$14,000	\$13,200	\$11,200	\$8,000	\$10,000	\$56,400
	40' Fixed Route Buses	-	-	-	9,000	-	9,000
	Paratransit Vehicles	4,832	4,160	4,225	3,380	3,250	19,847
	Community Transit/Call-n-Ride Vehicles	-	1,690	-	1,779	1,825	5,293
	Vanpool Vehicles	7,520	-	-	-	-	7,520
	Engine/Transmission Retrofits	-	2,003	2,002	2,019	2,002	8,026
	Subtotal – Rolling Stock	\$26,352	\$21,053	\$17,427	\$24,177	\$17,077	\$106,086
Support Facilities and Equipment	Improve Support Facilities	\$2,063	\$7,900	\$2,000	-	\$6,500	\$18,463
	Computer Systems/Hardware & Software	500	1,000	1,000	1,000	1,000	4,500
	Support Equipment/Non-Revenue Vehicles	600	1,000	1,000	1,000	1,000	4,600
	Farebox System	250	5,000	5,000	5,000	2,500	17,750
	Associated Capital	6,000	4,000	3,000	-	5,000	18,000
	Preventive Maintenance	3,000	7,250	6,980	6,808	6,633	30,671
	New Northwest Division Garage	46,800	-	-	-	-	46,800
	Office Equipment/Furniture	100	500	500	500	500	2,100
	Subtotal - Support Facilities and Equipment	\$59,313	\$26,650	\$19,480	\$14,308	\$23,133	\$142,884
Stations and Passenger Facilities	Improve Passenger Facilities	-	-	\$13,400	\$2,250	\$7,500	\$23,150
	Bus Stop Shelters/Signs	750	1,000	1,000	1,000	1,000	4,750
	Bus Tracker Sign Deployment	500	-	-	-	-	500
	Posted Stops Only Conversion	750	500	500	500	500	2,750
	Joliet Transit Center	7,500	-	-	-	-	7,500
	Orland Square Mall Passenger Facility	600	-	-	-	-	600
	Subtotal - Stations and Passenger Facilities	\$10,100	\$1,500	\$14,900	\$3,750	\$9,000	\$39,250
Miscellaneous	Unanticipated Capital	\$250	\$250	\$250	\$250	\$250	\$1,250
Total	Grand Total-Constrained	\$96,015	\$49,453	\$52,057	\$42,485	\$49,460	\$289,469

Based on the prioritization methodology described in the previous section, Table 12 contains a ranked list of capital projects for 2019, while Table 13 ranks the project intended for years 2020 through 2023.

Table 12: Ranked List of Capital Projects, 2019

PROJECT RANK	PROJECT NAME	ASSET CATEGORY	AMOUNT REQUESTED	AVERAGE SCORE
1	New Northwest Division Garage D & C	Support Facilities & Equipment	\$ 46,800,000	24.7
2	Posted-Stops-Only Conversion	Stations & Passenger Facilities	\$ 750,000	24
3	Joliet Passenger Facility	Stations & Passenger Facilities	\$ 7,500,000	21.7
4	Orland Square Mall Passenger Facility	Stations & Passenger Facilities	\$ 600,000	21
5	Paratransit Vehicle Replacements	Rolling Stock	\$ 7,995,000	20
6	30 Foot Diesel Bus Replacements	Rolling Stock	\$ 28,400,000	15.7
7	Fuel Nozzles	Support Facilities & Equipment	\$ 19,950	14.7
8	Shelters and Concrete Pads	Stations & Passenger Facilities	\$ 1,500,000	13.3
9	Bus Tracker Sign Deployment	Stations & Passenger Facilities	\$ 987,900	13.3
10	Replace Roof	Support Facilities & Equipment	\$ 2,000,000	12
11	1 Ton Pickup Trucks	Support Facilities & Equipment	\$ 540,000	11.7
12	Replace Carpeting	Support Facilities & Equipment	\$ 30,200	11.3
13	Office Equipment/ Furniture	Support Facilities & Equipment	\$ 100,000	8.3
14	Window Blinds	Support Facilities & Equipment	\$ 10,000	7.3
15	Drive-on Brake Tester	Support Facilities & Equipment	\$ 700,000	6.7
16	Computer Systems/Hardware & Software	Support Facilities & Equipment	\$ 1,000,000	5.3
17	Stationary Truck Tire Machine	Support Facilities & Equipment	\$ 20,000	3

Table 13: Ranked List of Capital Projects, 2020-2023

PROJECT RANK	PROJECT NAME	ASSET CATEGORY	UNCONSTRAINED NEED (MILLIONS)	AVERAGE SCORE
1	Farebox System	Support Facilities & Equipment	\$17.5	30.3
2	Plainfield Garage	Support Facilities & Equipment	\$41.	24.0
3	River Division Expansion and improvements	Support Facilities & Equipment	\$14.5	23.3
4	Posted Stops Only	Stations & Passenger Facilities	\$2.5	23.0
5	Pulse Dempster Buses (18)	Rolling Stock	\$9	20.0
6	North Shore Expansion and improvements	Support Facilities & Equipment	\$19.5	20.0
7	Harvey Transportation Center	Stations & Passenger Facilities	\$7.5	19.0
8	Environmental Consulting/ Underground Tanks	Support Facilities & Equipment	\$2.1	18.7
9	Homewood Transfer Center	Stations & Passenger Facilities	\$1.5	18.7
10	Gurnee Mills Transportation Center	Stations & Passenger Facilities	\$0.75	18.7
11	Fixed Route Bus Replacements (129)	Rolling Stock	\$51.6	18.3
12	Pulse Dempster Construction	Stations & Passenger Facilities	\$13.4	16.0
13	Bus Stop Signs/Shelters	Stations & Passenger Facilities	\$7	15.7
14	Paratransit Vehicle Replacements (274)	Rolling Stock	\$17.8	15.3
15	Support Equipment/ Non-Revenue Vehicles	Support Facilities & Equipment	\$12.5	15.3
16	Community Transit Vehicle Replacements (78)	Rolling Stock	\$5.9	15.0
17	Blue Island Park-n-Ride	Stations & Passenger Facilities	\$2.2	15.0
18	Chicago Heights Transfer Center	Stations & Passenger Facilities	\$2.5	15.0
19	Bolingbrook (Canterbury Lane) Park-n-Ride	Stations & Passenger Facilities	\$1.5	15.0
20	Homewood Park-n-Ride	Stations & Passenger Facilities	\$1.5	15.0
21	Prairie Stone Transportation Center	Stations & Passenger Facilities	\$3	15.0
22	Buffalo Grove Transportation Center	Stations & Passenger Facilities	\$2.5	15.0
23	Hillside Park-n-Ride	Stations & Passenger Facilities	\$1	15.0
24	Engine Transmission/ Retrofits/Associated Capital	Rolling Stock	\$15	14.7
25	Riverdale Bus Turnaround	Stations & Passenger Facilities	\$1.5	13.3
26	Office Equipment/Furniture	Support Facilities & Equipment	\$1	11.7
27	Orland Square Mall Layover	Stations & Passenger Facilities	\$1.6	11.3
28	Computer Systems/ Hardware & Software	Support Facilities & Equipment	\$5	10.3

ESTIMATION OF AVAILABLE CAPITAL FUNDING

In order to pay for our capital investments over the next five years, Pace will rely on funding from the sources described in Table 14.

Table 14: Capital Improvement Program Expected Funds (\$000s), FY2019-2023

ASSET CLASS	PROJECT	2019	2020	2021	2022	2023	5 year (2019-2023)
Federal Funds	Federal 5307	\$39,198	\$39,613	\$40,033	\$40,457	\$40,885	\$200,185
	Federal 5339	1,647	1,690	1,734	1,779	1,825	8,674
	Federal CMAQ	7,520	-	10,041	-	-	17,561
	Subtotal - Federal Funds	48,365	41,303	51,807	42,235	42,710	226,419
RTA Funds	RTA Bond	-	7,900	0	-	6,500	14,400
	Subtotal - RTA Funds	-	7,900	-	-	6,500	14,400
Pace Funds	Pace Bond	46,800	-	-	-	-	46,800
	Pace PBV	850	250	250	250	250	1,850
	Subtotal - Pace Funds	47,650	250	250	250	250	48,650
Total	Total	\$96,015	\$49,453	\$52,057	\$42,485	\$49,460	\$289,469

OPERATIONS AND MAINTENANCE COSTS

Capital investments have an impact on operating and maintenance costs, which are typically higher for older, less efficient vehicles, equipment, and facilities, which are more prone to breakdowns, and for which there may no longer be adequate support from suppliers. Pace’s Suburban Service Operating Budget gives a breakdown of our operating revenue/expenses, and public funding received. In FY 2016 and 2017, operating revenue covered about 25 percent of operating expenses for both years, with public funding covering the rest. In Pace’s three-year business plan, operating revenues are expected to grow at an annual compound rate of 3.5 percent, expenses at 2.9 percent, and total public funding at 1.8 percent (including both sales tax and federal revenue services). Figure 3 shows the actual/expected system-generated revenues, public funds, and total operating expenses from 2016 through 2020. Of Pace’s total operating expenses, approximately 56 percent is for labor and fringes.

Figure 3: Operating and Maintenance Costs (\$millions), 2017-2021

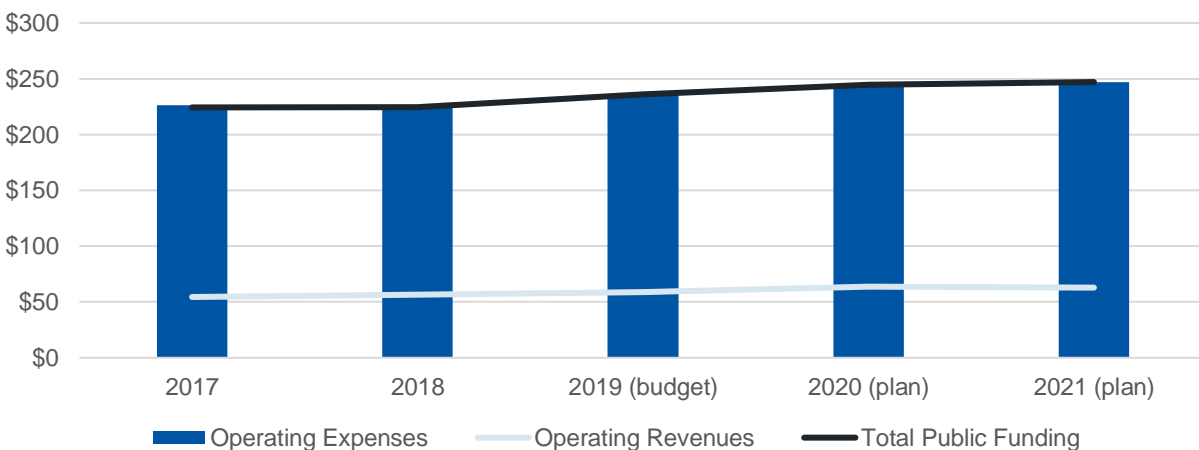


Table 15. Operating Expenses (\$000s)

OPERATING EXPENSES	2017 (ACTUAL)	2018 (ESTIMATE)	2019 (BUDGET)	2020 (PLAN)	2021 (PLAN)
Labor/Fringes	\$125,021	\$133,601	\$140,093	\$143,963	\$147,941
Healthcare	23,979	25,768	26,092	28,754	31,198
Parts/Supplies	7,676	7,490	7,662	8,196	8,766
Purchased Transportation	24,039	16,275	25,176	25,874	26,598
Fuel	11,901	13,747	14,606	16,892	18,110
Utilities	2,016	2,171	2,264	2,392	2,526
Insurance	12,602	9,300	10,733	11,482	12,285
Other (includes Debt Service)	25,940	25,725	18,496	19,850	21,195
Regional ADA Support Credit	(6,708)	(7,589)	(9,085)	(9,358)	(9,639)
Budget Balancing Actions	0	0	0	(3,526)	(11,971)
Total expenses before depreciation	\$226,466	\$226,488	\$236,037	\$244,519	\$247,009

8. ASSET MANAGEMENT IMPLEMENTATION

Pace 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 projects listed here in order to enhance our asset management practices over time.

TAM PLAN UPDATE AND EVALUATION

625.25 (b) A TAM Plan must include (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

At a minimum, this Plan will undergo a comprehensive update and review every four years, with a preferred update cycle of every three years to coincide with the FTA triennial review process. 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 towards asset management objectives.

To ensure the Plan remains useful and relevant, the following are examples of monitoring and review activities that will be undertaken:

- The Transit Asset Management and State of Good Repair Policy which directs the development of future asset management initiatives – including future versions of this asset management plan.
- Guidance for the delivery of maintenance and capital programs.
- Performance targets shall be monitored annually and reviewed as to their ability to deliver the required level of service for each asset class.
- The asset inventory and condition information shall be updated annually as part of NTD reporting.
- Pace's five-year capital plan shall be updated annually, following the investment prioritization procedures laid out in this document.
- Pace's Maintenance Manual and other guiding maintenance and management documents will be monitored and updated as needed, to ensure that the lifecycle management strategies contained therein continue to adequately address our assets' maintenance needs.

IMPROVEMENT PLAN

625.25 (b) A TAM Plan must include: (6) A provider's TAM Plan implementation strategy

As part of the development of this TAM Plan, Pace and our consultant, WSP, conducted workshops that identified recommended improvement actions. These actions were subsequently turned into a list of 23 discrete improvement initiatives, described in Table

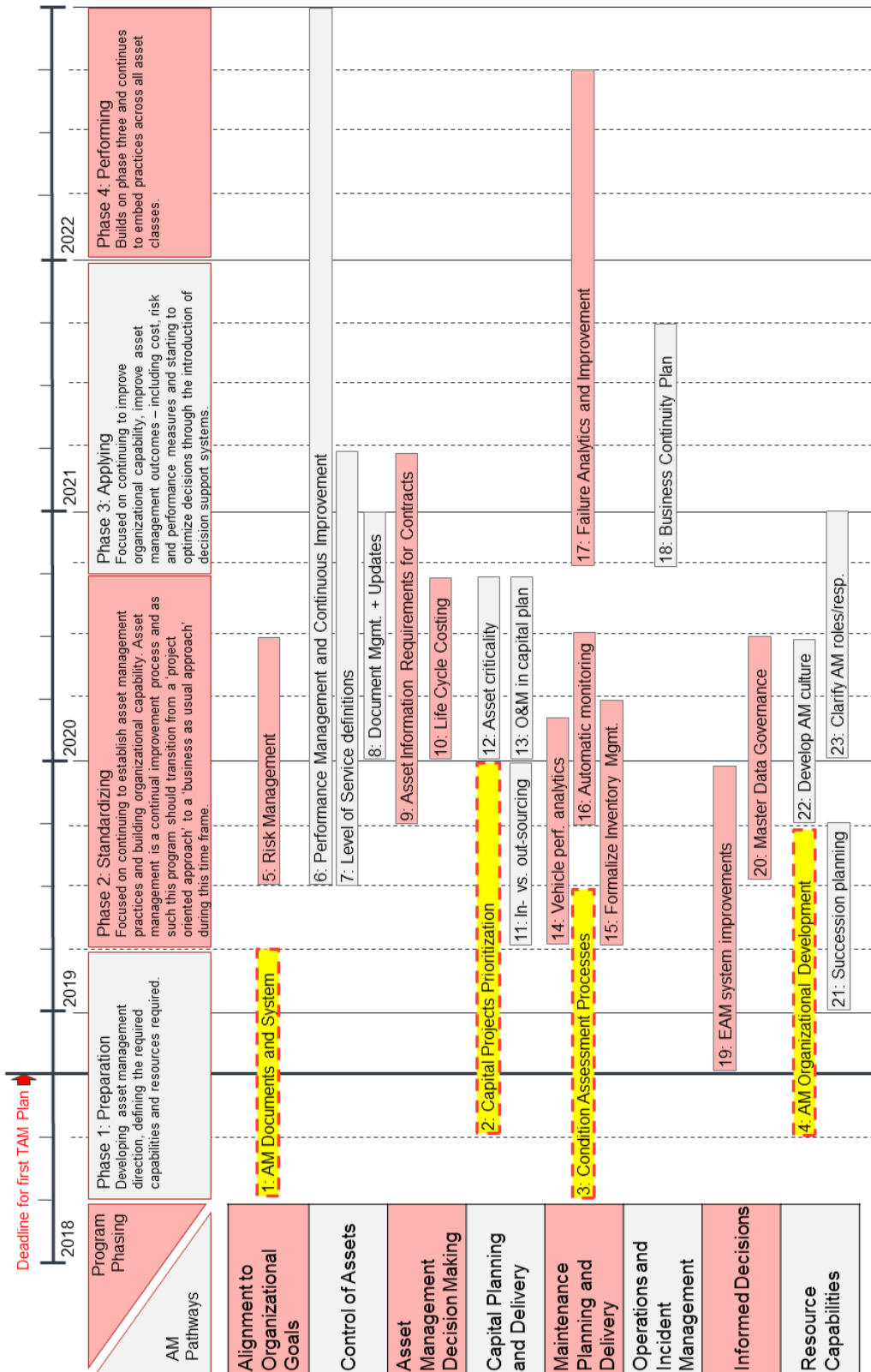
16. These have been programmed for implementation over the coming years as per the preliminary schedule shown in Figure 4.

Table 16. Asset Management Improvement Initiatives

#	IMPROVEMENT ACTION
1	Complete asset management guiding documents (including AM Policy, TAM Plan, AM Strategy, asset-specific sub-plans, etc.), and establish an Asset Management System to serve as a repository of all AM documents. <i>(FTA Requirement to complete AM Policy and TAM Plan; to be completed as part of this contract)</i>
2	Update capital project prioritization process to include out-year projects, and to consider impact on operations and maintenance, lifecycle costs, asset criticality, and asset condition. <i>(FTA Requirement to include ranked list of projects and anticipated year of procurement, looking at least 4 years out)</i>
3	Define an asset condition assessment approach for all critical assets that describes how, when, and what is measured. Condition rating parameters may differ across asset types but the scoring scale, e.g., 1 to 5, should remain consistent to enable comparison. i. As part of condition assessment processes, include information on what data should be collected, into which software system(s) it should be entered, and how it should be verified, updated, and analyzed. ii. Acquire/create a centralized asset inventory data repository capable of indexing drawings and multimedia records of assets as evidence to support condition assessments, with links to the condition assessments <i>(FTA requirement to inspect all facilities and rate them on 1-5 TERM-lite scale; to be completed as part of this contract)</i>
4	Ensure organizational capacity exists to successfully implement asset management through alignment of enterprise strategy and goals with asset management objectives, formalization of asset management-related roles and responsibilities, TAM organizational structure, appropriate training, and alignment of skills to asset management needs, process, procedure, and continuous improvement initiatives. <i>(FTA requirement to list the resources, including personnel, required to carry out the TAM Plan, which necessitates understanding anticipated asset management roles and responsibilities throughout the organization)</i>
5	Design and implement an enterprise-wide risk management program, integrated across departments. As part of this program, develop and document processes and procedures for identifying, assessing, and managing asset and asset management related risks (including but not limited to safety risks), and record these within a risk register. Communicate risks and risk management strategies to internal and external stakeholders regularly.
6	Develop a comprehensive performance management system, that includes monitoring of a wide-range of key performance indicators (KPIs) at the enterprise and asset level. i. KPIs should be clearly defined and communicated across the organization. ii. KPIs should be aligned to and measure achievement of Pace’s strategic goals. iii. KPIs should cover the entire asset lifecycle and be used to support strategic decisions, including investment prioritization and maintenance planning. iv. Performance targets should continue to be defined and measured in accordance with FTA requirements.
7	Quantify the required levels of service and the vehicles required to meet the service obligation, so that facility and equipment planning can be undertaken during planning of new services. Clarify the capacity of the existing organization to maintain any additional vehicles using the existing resources and existing maintenance policies and procedures and what compromises would have to be made.
8	Establish policies and processes for regularly updating documents within a document management system, including developing a "policy on policies". Set a norm that all documents within the AMS, and all other policies/plans/procedures, will undergo regular review to evaluate compliance, and to update in order to reflect any changes in strategy, procedures, and other connected documents.

#	IMPROVEMENT ACTION
9	Develop standard requirements and guidelines for the provision of asset information by contractors, including asset inventory and data, warranty, OEM manuals, maintenance manuals, and training. Records should be in a form easily incorporated into Pace's eAM systems.
10	Incorporate lifecycle cost information into investment decision-making, budget preparation, and asset policies and strategies.
11	Implement a process for large projects or procurements to consider whether the project should use in-house resources or be contracted out.
12	Develop a procedure for assigning and recording asset criticality and use criticality as a criterion in capital project prioritization and investment decision-making.
13	Engage maintenance and operations staff during the project development and design process and incorporate information on future maintenance and operations needs and costs into design
14	Enhance and formalize processes for monitoring vehicle performance, analyzing trends in collected data, and making improvements to maintenance plans and procedures.
15	Formalize strategies and processes related to inventory management, including how requirements are set for new assets, and those soon to be retired.
16	Expand use of automatic monitoring/feedback systems, and enable automatic generation of work orders based on trigger events.
17	Implement systems, processes, and procedures for review and analysis of failures (such as root cause analysis, asset configuration, and asset condition ratings) to prevent reoccurrences, and ensure corrective action is taken as appropriate.
18	Create a formal Business Continuity Plan that identifies enterprise and asset risks, threats and vulnerabilities that could impact Pace's continued operations; and details plans for managing incidents, operating restricted service, and resuming normal operations. Regularly test the plan and update it based on the test results.
19	Increase the utility of eAM systems by a) defining parent-child asset hierarchies that enable automatic assignment of work orders to specific sub-assets/components; b) establishing unique identifiers that allow tracking a specific asset across databases; c) incorporating mobile technology to facilitate data collection; d) increasing integration between Pace's eAM system and other technology systems; and e) enabling the capture and recording of lifecycle costs associated with an asset.
20	Expand the number and type of asset-level condition and performance metrics tracked, identify ways to use this data to predict failure, and produce a Master Data Governance Framework, which includes: <ul style="list-style-type: none"> a. Assigning authorized officers to establish and approve changes to asset data configuration, such as definition of asset class, characteristics, acceptable values, damage, cause codes, hierarchy and location referencing scheme, changes to the Bill of Materials, etc. b. Data Stewards that would ensure that data is correct before it is added to the system. c. Software checks and balances that would ensure that values are not entered into the system that are not a part of approved value lists. d. Reporting mechanisms to ensure that all changes are updated in all systems of record. e. Work processes that include master data update requirements, enabling inspectors to compare the asset in the field with the database on a mobile device, and update the master data and appropriate work flow as necessary. f. Minimum asset data standards and requirements including standard asset definitions, naming conventions, and formats across the agency.
21	Formalize succession planning efforts to improve knowledge management and mitigate the impacts associated with a potential loss of institutional knowledge.
22	Strengthen and build on the existing culture of asset management through consistent messaging from senior leadership and management staff, staff training on asset management, and identification of asset management knowledge and skills gaps.
23	Formalize asset management-related roles and responsibilities throughout Pace, including identification of champions and process owners, and consider optimal long-term TAM organizational structure.

Figure 4: Asset Management Improvement Roadmap



The colored bars show individual initiatives listed in this report. "1" refers to initiative number 1 in the report. Initiatives have been placed in the eight Pathways depending on the predominant activities within a project. Many projects actually cover more than one Pathway. Dashed red boundary indicates that this initiative is at least partly required for TAM compliance.

END OF TAM PLAN MAIN DOCUMENT

Pace Suburban Bus

INITIAL TRANSIT ASSET MANAGEMENT PLAN

APPENDICES



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INTRODUCTION TO THE APPENDICES

Several appendices provide supplemental content to the main document. Four of these appendices cover groups of assets, broken into categories based on the Regional Transportation Authority (RTA) annual budget categories.

A brief overview of each appendix is contained below.

Appendix A: NTD Narrative Report

This Appendix is a placeholder for future versions of this TAM Plan, when it will contain the narrative report on Pace's progress toward meeting performance targets, as required by the FTA as part of future NTD reporting.

Appendix B: Stations and Parking Facilities

This Appendix provides more detail on Pace's Station and Parking assets, including a more detailed asset inventory, condition information, lifecycle management strategies, asset management enablers, and capital plans. It also contains the initial condition assessment reports developed to comply with NTD Condition reporting requirements.

Appendix C: Support Facilities and Equipment

This Appendix provides more detail on Pace's Support Facilities and Equipment, including a more detailed asset inventory, condition information, lifecycle management strategies, asset management enablers, and capital plans.

Appendix D: Rolling Stock (Revenue Vehicles)

This Appendix provides more detail on Pace's Rolling Stock assets, including a more detailed asset inventory, condition information, lifecycle management strategies, asset management enablers, and capital plans.

Appendix E: Electrical, Signal, and Communications

This Appendix provides more detail on Pace's Electrical, Signal, and Communications assets, including a more detailed asset inventory, lifecycle management strategies, and asset management enablers.

Appendix F: Abbreviations and Acronyms

This Appendix lists abbreviations used in this document.

Appendix G: Terms and Definitions

This Appendix provides terms and definitions used to describe aspects of asset management that may be referenced in this document.

A. APPENDIX A – NTD NARRATIVE REPORT

Per the Federal Transit Administration's guidance:

The National Transit Database (NTD) program's Asset Inventory Module (AIM) is designed to collect basic information on assets and infrastructure used by U.S. transit agencies to deliver service. The purpose of assembling a nationwide inventory is to improve the Federal Transit Administration's (FTA's) ability to project capital costs for the future replacement (and necessary capital renewal activities) of existing transit assets.

This information supports the FTA biennial report to the U.S. Congress regarding cost estimates of transit capital. These estimates directly influence the FTA annual budget request submitted for the Federal fiscal year (FFY). The Transit Asset Management (TAM) rule (49 CFR part 625) is a set of federal regulations that set out minimum asset management practices for transit providers. Beginning in Report Year (RY) 2018, agencies that receive or benefit from Chapter 53 funds from the Federal Transit Administration are required to report asset inventory, condition and performance information to the National Transit Database.

Each Chapter 53 funding recipient developing a TAM Plan will be required to report annually to the FTA National Transit Database.

Pace's fiscal year aligns with the calendar year, January 1 through December 31. For Pace this means that the RY2018 submission is required to be uploaded to the NTD website no later than April 2019. Pace did not undertake the RY2017 option.

The RY2018 submission should include:

1. Projected targets for the Transit Provider's next fiscal year.
2. Condition assessments and performance results.
3. A narrative report on changes in transit system conditions and the progress toward achieving previous performance targets, beginning for RY2019.

Note that the FTA requires the use of their new prescribed AIM forms for reporting data elements. FTA does not have a prescribed format for the narrative report.

1. Transit Asset Management Performance Targets (A-90)
2. Transit Asset Management Facilities Inventory (A-15)
3. Transit Way Mileage (A-30) - Non-Applicable to Pace
4. Service Vehicle Inventory (A-35)

In future versions of Pace's TAM Plan, this section will include the required annual narrative reports.

B. APPENDIX B – STATIONS AND PASSENGER FACILITIES

B.1 NTD ASSET DEFINITION

In the *TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation*, the Federal Transit Administration (FTA) lays out the following guidance and definitions with respect to Stations and Passenger Facilities:⁵

Passenger Facilities

Agencies report passenger station information for fixed route, fixed schedule services (rail modes, bus modes, trolleybus, ferryboat, and aerial tramway). Each agency must report inventory data for all passenger stations the agency uses in public transportation even if the agency does not own the stations.

Passenger stations are significant structures on a separate right-of-way (ROW). For rail modes, passenger facilities typically mean a platform area and any associated access structures or accessory spaces accessible to passengers or by staff who are in support of passenger service. This definition of passenger facilities includes:

- *All rail passenger facilities (except for light rail, cable car, and streetcar modes)*
- *All light rail, cable car, and streetcar passenger facilities that have platforms and serve track that is in a separate ROW (not in mixed-street traffic)*
- *All motorbus, rapid bus, commuter bus, and trolley bus passenger facilities in a separate ROW that have an enclosed structure (building) for passengers for items such as ticketing, information, restrooms, and concessions*
- *All transportation, transit or transfer centers, and transit malls if they have an enclosed structure (building) for passengers for items such as ticketing, information, restrooms, concessions, and telephones*

As an example, a bus stop on a street or in a median is not a station if the bus stop does not have a separate, enclosed building. Open shelters, canopies, lighting, signage, or ramps for accessibility alone are not enough to establish a passenger station.

Parking Facilities

Parking facilities include park & ride lots as well as parking garages. Note that passenger and parking facilities are often collectively referenced as “passenger facilities.” Parking facilities are those immediately adjacent to passenger facilities.

⁵ Federal Transit Administration, U.S. Department of Transportation, “TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation”, Version 1.2, March 2018

B.2 ASSET PORTFOLIO AS OF 12-31-2017

Pace utilizes 26 passenger boarding and turnaround facilities, 12 transportation centers, and 29 Park-n-Ride lots, which are located across Northeast Illinois. Table B - 1 provides a list of Pace’s current passenger facilities, along with their address, the year they were built (if available), and the condition rating (for passenger facilities for which Pace has capital responsibility; otherwise, N/A is listed to indicate “not applicable”). In addition to the facilities in Table B - 1, Pace provides service to and from a number of Metra and CTA stations throughout the RTA service area in Northeastern Illinois.

Table B - 1: Stations and Passenger Facilities Inventory as of 12/31/2017

ASSET NAME	ADDRESS	YEAR BUILT (RENOVATED)	CONDITION RATING
Boarding and Turnaround Facilities			
Antioch Metra	305 Depot St., Antioch	Unavailable	N/A
Arlington Heights Metra	Payton Run at Dunton Ave., Arlington Heights	Unavailable	N/A
Clarendon Hills Metra	Railroad Ave. at South Prospect Ave., Clarendon Hills	Unavailable	N/A
College of Lake County	19351 West Washington, Grayslake 60030	Unavailable	N/A
Elmwood Park	Sunset Drive at 76th Ave., Elmwood Park	2005	N/A
Evanston - Davis Street CTA	Maple Ave., Evanston	Unavailable	N/A
Highland Park Metra	First St. between Walnut and Laurel, Highland Park	Unavailable	N/A
Palatine Metra	Smith St. at Wood St., Palatine	2000	N/A
Park Forest Turnout	Main St. at Victory St., Park Forest	Unavailable	N/A
Summit CTA/Pace	Il Route 171 at 63rd St., Summit	Unavailable	N/A
Deerfield Metra	Park Ave. at Jewett Park St., Deerfield	Unavailable	N/A
Des Plaines Metra	1501 Miner St., Des Plaines	Unavailable	3
Forest Park Transit Center	711 S. Des Plaines Ave., Forest Park	Unavailable	N/A
Homewood Metra	Harwood Ave, between Ridge Rd. and Kroner St., Homewood 60430	Unavailable	1
Lake Cook Road Metra	Lake Cook Rd. east of Pflingsten Rd., Deerfield	Unavailable	3
North Riverside Park Mall Turnaround	7501 Cermak Rd., North Riverside	Unavailable	3
Oak Park CTA/Metra	North Boulevard between Harlem Ave. and Marion St.	Unavailable	3
Prairie View - Metra	Main St., between Easton Ave. and Illinois Route 22	Unavailable	N/A
Libertyville/Prairie Crossing Metra	200 W. Lake St. at Milwaukee Ave., Libertyville	Unavailable	N/A
Prospect Heights - Metra	55 South Wolf Rd., Prospect Heights	Unavailable	N/A
Riverdale Bus Turnaround	13600 Indiana Ave., Riverdale	2002	2
Round Lake Beach - Metra	680 East Mallard Creek Dr., Round Lake Beach	Unavailable	N/A
South Suburban College - South Holland	Indiana Ave. at 162nd St., South Holland	Unavailable	3
Vernon Hills – Metra	75 East Route 45, Vernon Hills, IL	Unavailable	N/A

ASSET NAME	ADDRESS	YEAR BUILT (RENOVATED)	CONDITION RATING
Waukegan Transit Center	Sheridan Rd. north of Washington St., Waukegan	Unavailable	N/A
Waukegan Metra	95 N. Spring St., Waukegan	Unavailable	N/A
Total Boarding and Turnaround Facilities = 26			
Transportation Centers			
Aurora Transportation Center	233 North Broadway, Aurora	1984	N/A
Buffalo Grove Transportation Center (PNR)	801 Commerce Court, Buffalo Grove	1992 (2011)	2
Chicago Heights Transportation Center	1620 Vincennes Ave, Chicago Heights	1989 (1998)	2
Elgin Transportation Center	102 W. Chicago St, Elgin	1986 (2016)	4
Gurnee Mills TC	6170 W. Grand Ave., Gurnee	1992 (1992)	1
Harvey Transportation Center (PNR)	15330 Park Ave., Harvey	1999 (1999)	1~
Northwest Transportation Center (PNR)	1730 Kimberly Drive, Schaumburg	1995 (2014)	4^
Prairie Stone Transportation Center	5399 Trillium Blvd., Hoffman Estates	1992 (1994)	2
Toyota Park Transportation Center (PNR)	71st St. & Harlem Ave, Bridgeview	2014 (2014)	5
UPS Terminal 1&2	One UPS Way, Hodgkins	2003 (2003)	3
Rosemont TC	5801 North River Rd., Rosemont	N/A (2016)	N/A
95th Street CTA Station	14 95th St., Chicago	Unavailable	N/A
Total Transportation Centers = 12			
Park-n-Ride Lots* (Pace Owned)			
Blue Island PNR	3060 W. Burr Oak Ave. (127th), Blue Island	1996 (1998)	2
Bolingbrook - Old Chicago PNR	120 E. Old Chicago Drive, Bolingbrook	1995 (2015)	4^
Bolingbrook - Canterbury PNR	170 Canterbury Lane, Bolingbrook	1996 (2010)	2
Burr Ridge PNR	7650 Lincolnshire Drive, Burr Ridge	1995 (1995)	2
Elk Grove PNR	35 Northwest Point Blvd., Elk Grove Village	1998 (1998)	4^
Hillside PNR	4840 W. Darmstadt Rd., Hillside	2001 (2001)	2
Homewood PNR	750 Ridge Rd., Homewood	2001 (2010)	2
I-90/Randall Road PNR	2001 N. Randall Rd., Elgin	2016 (2016)	5
I-90/IL-25	1475 Dundee Ave., Elgin	2017 (2017)	5
I-90/Barrington Road PNR ⁶	2410 Central Rd., Hoffman Estates	2018 (2018)	5
Total Pace Owned Park-n-Ride Lots* = 10			
Park-n-Ride Lots* (Non-Pace Owned)			
Chancellory PNR	500 Park Boulevard, Itasca	Unavailable	N/A
Larry's Diner	24522 Lockport St., Plainfield	Unavailable	N/A
Romeoville White Fence Farm PNR	1376 Joliet Rd., Romeoville	Unavailable	N/A
Yorktown Shopping Center	203 Yorktown, Lombard	Unavailable	N/A
Sears Centre Arena Lot C	5333 Prairie Stone Parkway, Hoffman Estates	Unavailable	N/A

⁶ I-90/Barrington Road PNR was constructed in 2018, and is one of two sites expected to come on-line in 2018 Performance Targets, and would not be a location as of 12/31/2017.

ASSET NAME	ADDRESS	YEAR BUILT (RENOVATED)	CONDITION RATING
95th Street PNR	91st St. and Normantown, Naperville	Unavailable	N/A
Community Christian Church	1635 Emerson Lane, Naperville	Unavailable	N/A
DeVry University	18624 W. Creek Drive, Tinley Park	Unavailable	N/A
Plainfield PNR Village Center ⁷	14740 Depot Drive, Plainfield	2018	5
St. Thomas the Apostle Church	1500 N Brookdale Rd., Naperville	Unavailable	N/A
Wheatland Salem Church	1852 W. 95th St., Naperville	Unavailable	N/A
IDOT Channahon PNR	I-55 and Route 6, Channahon	Unavailable	N/A
IDOT Shorewood PNR	I-55 and Route 52, Shorewood	Unavailable	N/A
IDOT Joliet PNR	I-55 and Route 30, Joliet	Unavailable	N/A
Fairview Plaza	75th St. and Fairview, Downers Grove	Unavailable	N/A
Meadowbrook Shopping Center	Belmont Rd., South of 63rd St., Downers Grove	Unavailable	N/A
McHenry DOT PNR	Virginia Rd. at IL 31, Lake in the Hills	Unavailable	N/A
Palos Heights Metra	11451 Southwest Highway, Palos Heights	Unavailable	N/A
Oak Lawn Metra	9525 S. Tulley Ave., Oak Lawn	Unavailable	N/A
<i>Total Non-Pace-Owned Park-n-Ride Lots* = 19</i>			
Total Passenger Facilities = 67			

*Park-n-Ride lots associated with Transportation Centers are included with the respective Transportation Center at this time, and are not listed here.

~ Condition rating adjusted based on Facilities Maintenance desktop review

^ Condition rating adjusted based on Revenue Services desktop review

B.3 ASSET CONDITION

B.3.1 CONDITION ASSESSMENT

The condition ratings reported in this Plan for most of Pace’s passenger facilities assets (all those in the table above not marked with a ^ or ~ symbol) are based on results from RTA’s Capital Optimization Support Tool (COST), which has been used in prior years to assess transit capital investment needs across the Chicago region (including for the Chicago Transit Authority and Metra). The COST condition rating process is based on the FTA’s TERM-Lite software which uses an age/decay-curve based approach for asset condition estimation, and since 2014 has been supplemented by a small sample of actual asset condition observation-based ratings. At that time, the RTA asset condition sampling forms were tailored at a high level and used to gather general site and building conditions by visual observation only. For many assets, the condition data were collected for individual components and scores were aggregated into a single, overall condition score for that asset.

The condition ratings for some facilities (those marked in the table above with a ^ or ~ symbol) were adjusted based on desktop review of the Revenue Services and Facilities Maintenance departments, respectively.

⁷ Plainfield PNR was constructed in 2018, and is one of two sites expected to come on-line in 2018 Performance Targets, and would not be a location as of 12/31/2017. Plainfield PNR Village Center was the site originally used up until the new site was constructed.

In all cases, the condition scores follow the FTA-defined condition ratings of one (poorest condition) to five (best condition), as shown in Table B - 2.

Table B - 2: Passenger Facilities Condition Rating Levels

CONDITION	DEFINITION
5 (Excellent)	No visible defects, new or near new condition, may still be under warranty if applicable
4 (Good)	Good condition, but no longer new, may have some slightly defective or deteriorated component(s), but is overall functional
3 (Adequate)	Moderately deteriorated or defective components; but has not exceeded useful life
2 (Marginal)	Defective or deteriorated component(s) in need of replacement; exceeded useful life
1 (Poor)	Critically damaged component(s) or in need of immediate repair; well past useful life

Facility Condition Assessments 2018

Beginning in 2018 Pace has commenced assessing the condition of our facilities using the FTA guidance document for facilities condition assessments. As per the guidance Pace intends to assess at least one-quarter of our facilities each year, completing assessments of all facilities on a four-year cycle. Pace has contracted with WSP to complete these. Of the facilities requiring assessment per the Final Rule criteria, over one quarter were assessed during September 2018.

The condition scores collected prior to September 2018 (see Table B - 1) will remain in place for facilities not yet assessed using the new methodology. This prior methodology is discussed above. As the remaining facilities are assessed in the coming four years those older scores will be replaced. The older scores use the same TERM scale detailed in Table B - 2 but the scores were based on a different breakdown of sub-assets within each facility and summed using a different calculation. If these different scoring methodologies cause fluctuations in the condition scores and performance targets during these transitional years the differences will be analyzed and explained in the annual NTD narrative reports.

In 2018 nine facilities were inspected by WSP, as summarized in Table B - 4. Each facility was scored using “TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation”, issued by the FTA, as the primary source for inspection and grading methodology. The Guidebook relies largely on visual inspection, and in cases of difficult to access areas, it relies on visual inspection from an access point. The Guidebook requires condition scores be given to 10 building systems in each facility (substructure, shell, interiors, elevators, plumbing, HVAC, fire protection, electrical, site, and fare collection), which are summed into a single score for each facility using a calculation method at the discretion of the agency.

The nine facilities inspected in 2018 were all considered single facilities on discrete sites, per the Guidebook definitions.

Pace has used a bespoke weighting system based upon the criticality of those 10 building systems to delivery of customer service. Those weightings appear in the detailed scorecards in Section B.7, but are summarized in Table B - 3. Ranges are provided because some facilities did not have all the building systems listed so weightings are redistributed accordingly in that case. Many of the sites have large areas

of pavement and or landscaping which are scored under “Site” which proportionally reduces the weightings given to the other building systems.

Table B - 3: Building Systems Weightings

ID	BUILDING SYSTEM	WEIGHTINGS (%)
A	Substructure	5-15
B	Shell	20-35
C	Interiors	5-10
D	Conveyance	1-5
E	Plumbing	5-10
F	HVAC	5-10
G	Fire Protection	1-5
H	Electrical	1-5
I	Equipment / Fare Collection	10-15
J	Site	10-15
Total		100%

To record grades and notes, the inspector utilized a grading sheet similar to that available in the Guidebook, but modified to allow more room for notes. Where a building system had multiple scores for multiple areas, a weighting system was used to determine an overall score for that system. This scoring is evident in the scorecards in Section B.7.

The inspector walked over and made observations of the site, made observations of each structure, and walked through and observed all accessible spaces and equipment of each facility. Site drawings were used to augment the inspection, including showing underground utility locations. Certain difficult to access or difficult items for direct view resulted in the inspector making distant and/or indirect observations where required.

During the inspection, issues were brought to the attention of the inspector by Pace staff, while others became apparent after further discussion with staff. The remainder of the items were the result of direct observation. All items were classified as part of one of the 10 building systems and graded in accordance with the FTA Guidebook.

B.3.2 CURRENT CONDITION INFORMATION AND PERFORMANCE TARGETS

Condition information for Pace’s passenger facilities, as of December 31st, 2017 (used for the FY2018 performance targets), is reported by facility in Table B - 1, while updated condition rating for facilities assessed by WSP in 2018 is included in Table B - 4.

Table B - 4: Condition Scores for Facilities Assessed in 2018

ASSET NAME	CONDITION RATING (PRIOR TO 2018)	CONDITION RATING (2018)	COMMENTS ON DIFFERENCES
Transportation Centers			
Buffalo Grove Transportation Center (PNR)	2	3	Recent refurbishments to half of the property increased the overall score up a grade and brought into a State of Good Repair
Gurnee Mills Transportation Center	1	2	Scores very slightly increased and rounding brought score up a grade
Prairie Stone Transportation Center	2	3	Scores very slightly increased and rounding brought score up a grade

ASSET NAME	CONDITION RATING (PRIOR TO 2018)	CONDITION RATING (2018)	COMMENTS ON DIFFERENCES
Park-n-Ride Lots (Pace Owned)			
Bolingbrook - Old Chicago PNR	4	3	Some improvements but wear is apparent
Bolingbrook - Canterbury PNR	2	3	Site is worn but repairs have extended the life and brought into state of good repair
Burr Ridge PNR	2	2	(score unchanged)
Elk Grove PNR	4	3	General wear over time to much of site
I-90/Randall Road PNR	5	5	(score unchanged)
I-90/IL-25	5	5	(score unchanged)

Condition ratings will be used for required reporting in the National Transit Database (NTD), and to measure performance against annual targets. With the introduction of TAM, Pace has been required since 2017 to develop performance targets for the assets for which we have capital replacement responsibility. For passenger/parking facilities, the performance target must reflect the “percentage of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) scale (1=Poor to 5=Excellent).”⁸

"Beginning in Report Year 2019, agencies must upload a narrative report to the NTD that outlines performance targets and their progress toward those targets. This narrative may include any changes in transit system conditions that may affect progress toward targets. There is no prescribed format for the narrative report.”⁹

Information on Pace’s performance targets for stations and parking facilities is contained in Table B - 5. Performance Targets are developed per FTA's guidance for locations where Pace has capital responsibility.

Table B - 5: Performance Targets for Stations and Passenger Facilities

ASSET TYPE	QUANTITY (1/1/2018)	CONDITION LESS THAN 3 (1/1/2018)	NEW CONSTRUCTION (2018)	QUANTITY (12/31/2018)	2018 TARGET
Passenger Stations	3	33%	0	3	33%
Passenger Parking	22	50%	2	24	46%

⁸ Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide

⁹ Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide

B.4 LIFECYCLE MANAGEMENT STRATEGIES

B.4.1 OVERVIEW

The following sections detail the lifecycle management strategies that Pace uses to maintain our stations and passenger facilities in a State of Good Repair.

B.4.2 MAINTENANCE

Preventative Maintenance

The responsibility of maintenance and repairs to Passenger Facilities lies with Revenue Services. Capital Financing and Infrastructure (CFI) Facility Maintenance staff do perform Bi-Annual inspections to those Passenger Facilities where there are buildings (i.e. driver washrooms, passenger waiting areas, etc.).

Corrective Maintenance

Any deficiencies found during the CFI inspections are reported to Revenue Services for follow-up repairs. Any major deficiencies (concrete and asphalt failure, tuck pointing, etc. are identified and referred to the CFI Department Manager for further analysis in order to determine whether the infrastructure is nearing the end of its life and if so develops a replacement cost estimate and recommends that it be included in the next annual capital budget request for funding. The CFI Architect is responsible for writing design scopes for mid-life renovations in order to monitor Pace's effort to returning our infrastructure to a State of Good Repair.

B.4.3 CAPITAL INVESTMENT

The budgeting process for facilities follows the same process outlined in Section 7, Investment Prioritization, of the TAM Plan. The need for capital investment in Stations and Passenger Facilities is assessed using Pace's Capital Project Scoring Criteria and prioritized for investment based on funding availability.

B.4.4 DISPOSAL

At Pace, an asset is disposed of if it has exceeded its useful life and is no longer needed or functioning, or has been damaged or destroyed before the end of its useful life. When disposal is necessary, an Asset Disposal Form is completed by the division or department that holds or is responsible for the asset. The form is submitted to Accounting and the Fixed Asset Accountant reviews the asset to determine if there is any remaining useful life. If there is, then that is noted on the form. The form is then reviewed and approved by the Section Manager, Accounts Payable/Receivable and also the Section Manager, Grants Administration if the asset is capital funded. The Fixed Asset Accountant determines whether an asset should be disposed of by the Using Department or sold by the Purchasing Department. The Purchasing Department is responsible for obtaining payment for the sale of an asset, and forwarding those funds directly to the Finance Department. If the proceeds from the asset exceed a certain dollar value or have remaining useful life, then Capital Financing and Infrastructure will coordinate repayment to the funding agency and obtain concurrence. Pace has an agreement with the FTA that allows Pace to retain all funds due back to

the FTA, with the assurance that Pace acquire new assets with the funds and give the FTA 100% equity in those assets.

B.4.5 SUPPLY CHAIN AND PROCUREMENT

Size and scope of the project also influences which department manages the procurement. Once a project or procurement has been approved and included in the Capital Program, Design & Construction (D&C) writes a scope of work. To develop the scope of work, staff conduct research on appropriate specifications and estimated cost. Once complete, the scope is sent to a series of approvers, who may request revisions or modifications to the request as necessary before approval. The D&C group has a formal process that outlines how and when input from other departments should be solicited during the procurement process.

As part of the procurement process, Pace collects all necessary documentation from the winning contractor, including insurance & bonds, if applicable. Pace staff administer construction contracts, and perform construction management and oversight of contractors. Pace has formal processes in place for the following: requests for information (RFI), payment application, and change orders.

Once a project reaches substantial completion, the contractor must notify Pace in writing, indicating what work remains to be completed, and request an inspection. If Pace agrees that the project is substantially complete, a punch list is created for all remaining items. At substantial completion, the contractor is eligible for a reduction in retainage (retainage is typically 10 percent of the contract value), the amount of which differs by subcontract. Upon completion, contractors are paid in full.

Most projects undertaken at existing facilities are completed in multiple phases to reduce the impact of construction on routine business. For example, one portion of a facility will be taken out of service until substantially complete; once it is substantially complete it will be put back into service and another part will be taken out of service.

A contract is closed once Pace has received all deliverables or assets and all parties (prime and sub-contractors) have been fully paid. Substantial completion indicates that the constructed improvements may be used. Prior to declaring substantial completion, Pace will walk through the premises to ensure it is suitable for operation and develop a punch list of remaining items to be completed before closing the contract. As part of close-out procedures, Pace ensures that all materials and documentation have been received, including warranties, manuals, waivers, and certified pay apps.

B.5 ASSET MANAGEMENT ENABLERS

B.5.1 ORGANIZATION

Responsibility for operations and maintenance of Pace's Passenger Facilities is divided across the organization, between Internal Services/Facilities Maintenance and Revenue Services/Bus Operations. At the Transportation Centers, Facilities Maintenance is only responsible for maintaining the HVAC systems. Facilities Maintenance includes the Transportation Centers in the Blanket Contract that applies to all garages.

Revenue Services has four staff members based out of South Holland Acceptance Facility who handle Passenger Station Facility Maintenance, and not repairs at the Operating Divisions.

B.5.2 TRAINING

When an asset is replaced or modified, training is provided for in-house staff, and a review of operations and maintenance (O&M) manuals and preventative maintenance checklists is completed to ensure they are up to date and relevant to the new assets. Staff from the garages are heavily involved in this update process.

B.5.3 STANDARDS, LEGISLATION, REGULATION, AND OTHER MANDATED REQUIREMENTS

There are multiple “lines of defense” at Pace regarding compliance: managers, compliance areas, and Internal Audit. Managers are the front line, responsible for setting and enforcing policies. Compliance areas such as Ethics, Legal, and HR are the second line. Internal Audit follows Institute of Internal Auditing Standards. Pace has an Audit Charter approved by the Pace Audit Committee and Board of Directors, and has a procedure manual.

Compliance groups, such as Legal, Ethics, Internal Audit, and HR are primarily responsible for knowing the relevant regulatory requirements. Accounting, Grants, and Purchasing are also responsible for compliance. Internal Audit reviews regulatory requirements, and policies/procedures to ensure Pace compliance as it relates to each audit conducted by Internal Audit and ensures compliance with them. All requirements are captured in policies, which are on the Intranet, though there is no separate depository for legislative/regulatory requirements.

B.5.4 TECHNOLOGY

Pace relies on several software applications to support improved performance management and decision making including Oracle Enterprise Asset Management (eAM) and Oracle Application Express (APEX).

Oracle eAM is a comprehensive maintenance management system that delivers numerous efficiencies and cost savings. Pace uses Oracle eAM to:

- Create a preventative maintenance strategy
- Maximize resource availability, including both equipment and labor
- Optimize scheduling and resource efficiency
- Provide Asset Management and Work Management functions

Pace relies on Oracle eAM to record facilities-related assets, of which there are approximately 2,500 across the organization. Oracle eAM has the ability to include parent/child relationships, however, Pace is not currently using this functionality to its full capacity. Information, including maintenance history, can be pulled up in eAM on specific assets, however, there is no comprehensive inventory of all items installed and their individual costs.

Pace does not require our contractors to provide asset information to be input directly into eAM. Instead, a list of equipment is provided to Pace’s eAM managers (within IT), who enter the information into eAM manually.

B.5.5 ASSET KNOWLEDGE AND INFORMATION

Oracle eAM enables the assessment of which assets, including facilities, require the most capital and operating expenditure and which are experiencing a large number of defects.

B.5.6 ASSURANCE

During construction, project managers and technical support staff, including architectural/engineering design consultants and testing consultants as needed, are onsite to monitor contractor performance, including to ensure that all work is performed in accordance with contract requirements.

B.6 CAPITAL PLANS

In FY2019 through FY2023, Pace expects to spend over \$39 million on stations and passenger facilities. Table B - 6 below provides a snapshot of Pace’s anticipated capital spend in this asset class.

Table B - 6: Stations and Passenger Facilities Capital Budget Forecast (\$000s)

PROJECT	2019 BUDGET	2020 FORECAST	2021 FORECAST	2022 FORECAST	2023 FORECAST
Improve Passenger Facilities	\$-	\$-	\$13,400	\$2,250	\$7,500
Bus Stop Shelters/Signs	750	1,000	1,000	1,000	1,000
Bus Tracker Sign Deployment	500	-	-	-	-
Posted Stops Only Conversion	750	500	500	500	500
Joliet Transit Center	7,500	-	-	-	-
Orland Square Mall Passenger Facility	600	-	-	-	-
Total	\$10,100	\$1,500	\$14,900	\$3,750	\$9,000

B.7 CONDITION ASSESSMENT REPORTS

The following nine scoresheets, Table B - 7 through Table B - 15 show the scores given for each building system at each facility, the overall scores, and include a representative photo and thumbnail site plan. These are all extracts from a more detailed report on the condition assessments, “Pace Facilities Inspection Report 2018”.

Table B - 7: WSP Inspection Report - Gurnee Mills

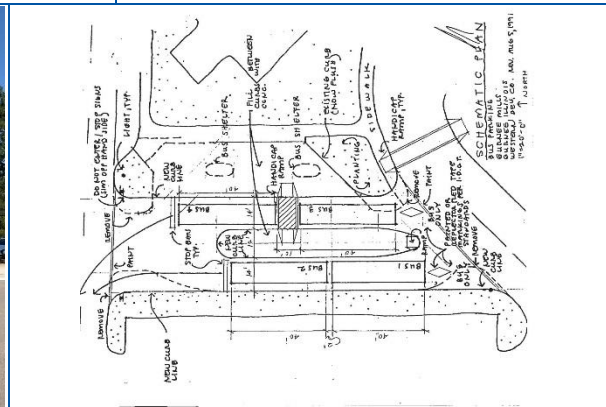
Inspection Date	September 17, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	Gurnee Mills Transit Center
Address / Location	6170 W. Grand Ave. Gurnee Illinois 60031

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	168	SF	2	6				100	
B	Shell	432	SF	1.86	10				86	14
C	Interiors	0	SF	0	0					
D	Conveyance	0	Each	0	0					
E	Plumbing	3	Each	3	1			100		
F	HVAC	0	Each	0	0					
G	Fire Protection	0	SF	0	0					
H	Electrical	0	SF	0	0					
I	Equipment	0	Each	0	0					
J	Site	10,070	SF	1.44	83				44	56

Total Aggregate Rating	1.53
Aggregate Rating Rounded	2



Representative Inspection Photo



Site Plan

Table B - 8: WSP Inspection Report – Prairie Stone

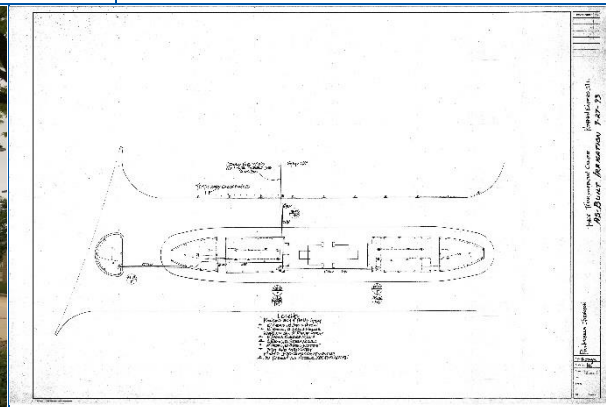
Inspection Date	September 18, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	Prairie Stone Transit Center
Address / Location	5401 Trillium Blvd. Hoffman Estates, IL 60192

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	976	SF	2	10				100	
B	Shell	9,426	SF	2.79	25			84	11	5
C	Interiors	170	SF	1.79	4				79	21
D	Conveyance	0	Each	0	0					
E	Plumbing	4	Each	2.5	4			75		25
F	HVAC	2	Each	3	1			100		
G	Fire Protection	1	SF	3	1			100		
H	Electrical	30	Each	1.67	5				67	33
I	Equipment	0	Each	0	0					
J	Site	58,409	SF	2.7	50			80	10	10

Total Aggregate Rating	2.56
Aggregate Rating Rounded	3



Representative Inspection Photo



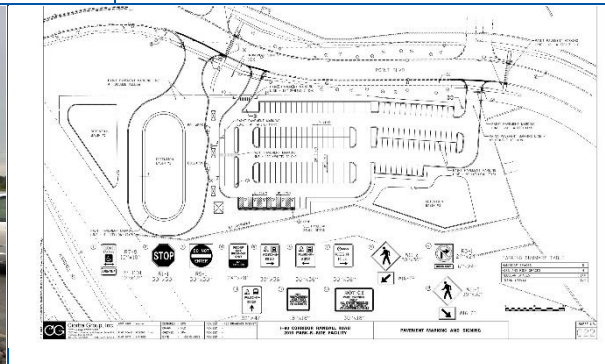
Site Plan

Table B - 9: WSP Inspection Report – I-90 Randall Road

Inspection Date	September 18, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	I-90 Randall Road Transit Center
Address / Location	2001 N. Randall Road Elgin, Illinois 60123

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	755	SF	5	10	100				
B	Shell	2,230	SF	4.99	20	99	1			
C	Interiors	703	SF	4.98	4	98	2			
D	Conveyance	0	Each	0	0					
E	Plumbing	2	Each	5	4	100				
F	HVAC	4	Each	5	1	100				
G	Fire Protection	0	SF	0	0					
H	Electrical	18	Each	5	5	100				
I	Equipment	1	Each	1	1					100
J	Site	155,248	SF	4.99	55	99	1			

Total Aggregate Rating	4.95
Aggregate Rating Rounded	5



Representative Inspection Photo

Site Plan

Table B - 10: WSP Inspection Report – I-90 IL 25 Park N Ride

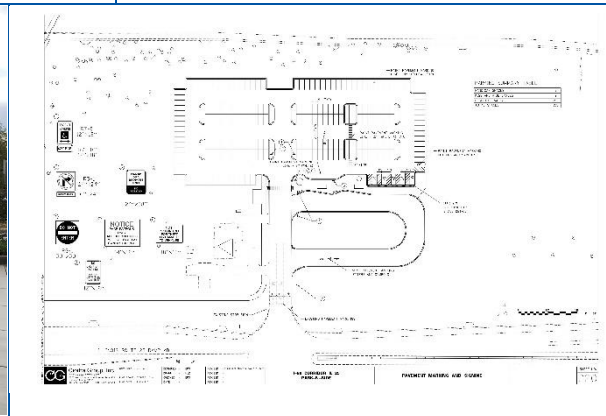
Inspection Date	September 18, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	I-90 / IL 25 Park n Ride
Address / Location	1475 Dundee Ave. Elgin, IL 60120

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	224	SF	5	13	100				
B	Shell	1,012	SF	4.99	20	99	1			
C	Interiors	0	SF	0	0					
D	Conveyance	0	Each	0	0					
E	Plumbing	0	Each	0	0					
F	HVAC	2	Each	5	1	100				
G	Fire Protection	0	SF	0	0					
H	Electrical	17	Each	5	5	100				
I	Equipment	1	Each	2.5	1		50			50
J	Site	115,200	SF	4.85	60	94.5		2	3	0.5

Total Aggregate Rating	4.88
Aggregate Rating Rounded	5



Representative Inspection Photo



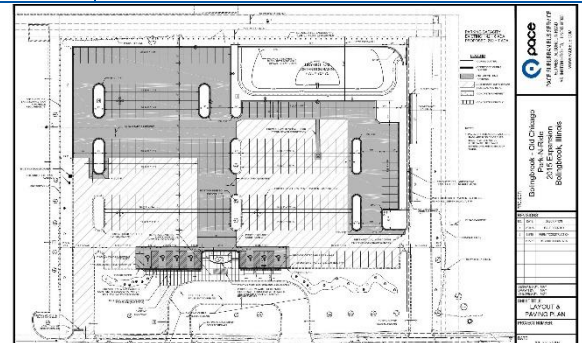
Site Plan

Table B - 11: WSP Inspection Report – Bolingbrook Old Chicago

Inspection Date	September 18, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	Bolingbrook Old Chicago
Address / Location	120 East Old Chicago Drive Bolingbrook 60440

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	112	SF	3	12			100		
B	Shell	506	SF	3	20			100		
C	Interiors	0	SF	0	0					
D	Conveyance	0	Each	0	0					
E	Plumbing	0	Each	0	0					
F	HVAC	1	Each	4	1		100			
G	Fire Protection	1	Each	2	1				100	
H	Electrical	15	Each	3.7	5		85	6	6	
I	Equipment	1	Each	0	1		50			50
J	Site	139,730	SF	3.26	60		36	54	10	

Total Aggregate Rating	3.16
Aggregate Rating Rounded	3



Representative Inspection Photo

Site Plan

Table B - 12: WSP Inspection Report – Bolingbrook Canterbury

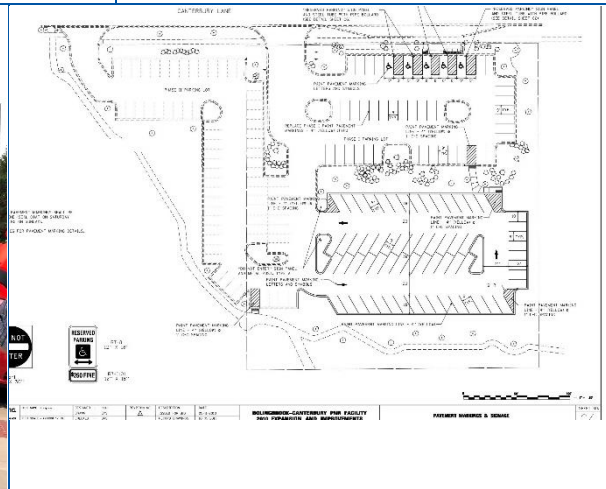
Inspection Date	September 18, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	Bolingbrook Canterbury
Address / Location	170 Canterbury Lane Bolingbrook, Illinois 60440

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	112	SF	3	12			100		
B	Shell	506	SF	2	20				100	
C	Interiors	0	SF	0	0					
D	Conveyance	0	Each	0	0					
E	Plumbing	0	Each	0	0					
F	HVAC	1	Each	3	1			100		
G	Fire Protection	1	Each	2	1				100	
H	Electrical	7	Each	2.72	5			72	28	
I	Equipment	1	Each	2	1			50		50
J	Site	88,680	SF	2.9	60			95		5

Total Aggregate Rating	2.71
Aggregate Rating Rounded	3



Representative Inspection Photo



Site Plan

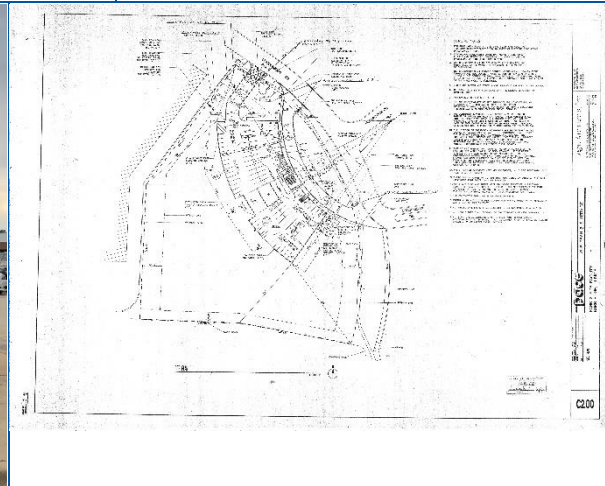
Table B - 13: WSP Inspection Report – Burr Ridge

Inspection Date	September 18, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	Burr Ridge Park n Ride
Address / Location	7650 Lincolnshire Drive, Burr Ridge, Illinois, 60527

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	324	SF	2.85	10			85	15	
B	Shell	594	SF	2.4	20			70		30
C	Interiors	0	SF	0	0					
D	Conveyance	0	Each	0	0					
E	Plumbing*	88,680	SF	3	3			100		
F	HVAC	0	Each	0						
G	Fire Protection	0	Each	0						
H	Electrical	10	Each	2.5	5			60	30	10
I	Equipment	1	Each	2	1			50		50
J	Site	88,680	SF	1.8	60			40		60

* Plumbing in this instance refers to a sprinkler system over the whole site.

Total Aggregate Rating	2.08
Aggregate Rating Rounded	2



Representative Inspection Photo

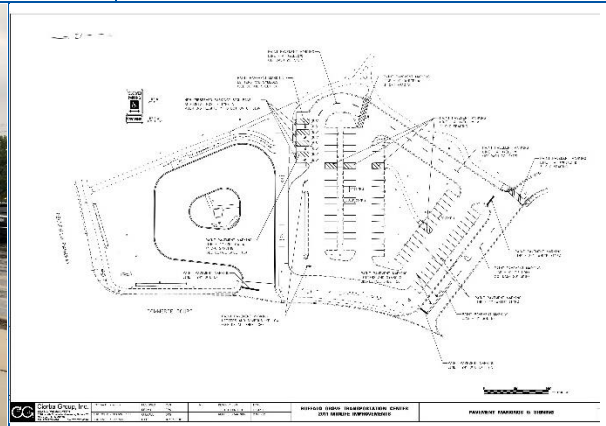
Site Plan

Table B - 14: WSP Inspection Report – Buffalo Grove

Inspection Date	September 20, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	Buffalo Grove Park n Ride
Address / Location	801 Commerce Ct, Buffalo Grove, Illinois 60089

ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	464	SF	4	10		100			
B	Shell	594	SF	3.97	15		99			1
C	Interiors	510	SF	3	5			100		
D	Conveyance	10	Each	0	0					
E	Plumbing	4	Each	2	2				100	
F	HVAC	2	Each	2	2				100	
G	Fire Protection	10	Each	0	0					
H	Electrical	24	Each	2.84	5			92		8
I	Equipment	1	Each	2.5	1		50			50
J	Site	72,481	SF	3.5	60		65		45	

Total Aggregate Rating	3.49
Aggregate Rating Rounded	3



Representative Inspection Photo

Site Plan

Table B - 15: WSP Inspection Report – Elk Grove

Inspection Date	September 20, 2018
Inspector Name	Cary Els / Rafael Ruiz
Facility Name	Elk Grove Park n Ride
Address / Location	35 NW Point Blvd Elk Grove Village, Illinois 60007

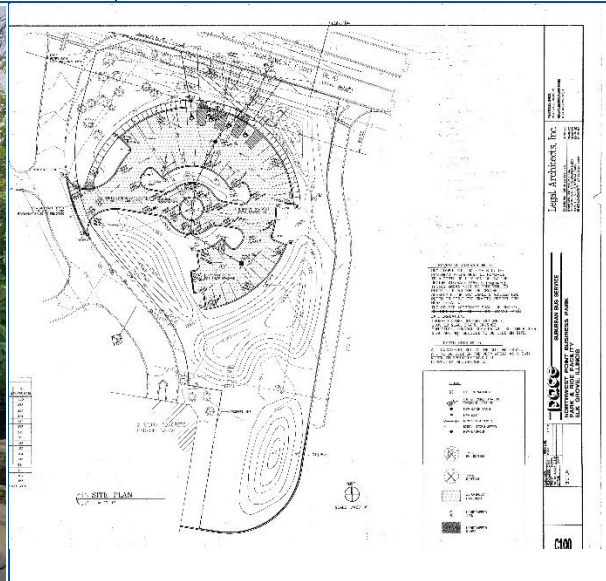
ID #	NAME	ASSET QUANTITY	UNIT OF MEASURE	CONDITION RATING	ASSIGNED WEIGHT VALUE	PERCENT OF ASSET QUANTITY BY CONDITION				
						5	4	3	2	1
A	Substructure	112	SF	3	10			100		
B	Shell	624	SF	3	15			100		
C	Interiors	10	SF	0	0					
D	Conveyance	10	Each	0	0					
E	Plumbing*	75,673	Each	3	2			100		
F	HVAC	10	Each	0	0					
G	Fire Protection	10	Each	0	0					
H	Electrical	16	Each	2.5	5			50	50	
I	Equipment	1	Each	2.5	1		50			50
J	Site	75,673	SF	2.66	60			68	30	2

* Plumbing in this instance refers to a sprinkler system over the whole site.

Total Aggregate Rating	2.56
Aggregate Rating Rounded	3



Representative Inspection Photo



Site Plan

C. APPENDIX C – SUPPORT FACILITIES AND EQUIPMENT

C.1 ASSET DEFINITION

In the *TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation* (for support facilities),¹⁰ and in the *NTD 2017-2018 Asset Inventory Module Reporting Guide* (for equipment),¹¹ the FTA lays out the following guidance and definitions with respect to Support Facilities and Equipment:

Administrative Facilities

Administrative facilities are typically offices that house management and supporting activities for overall transit operations such as accounting, finance, engineering, legal, safety, security, customer services, scheduling, and planning. They also include facilities for customer information or ticket sales, but that are not part of any passenger station.

Maintenance Facilities

Maintenance facilities are those where routine maintenance and repairs or heavy maintenance or unit rebuilds are conducted. Agencies must not report maintenance facilities where third-party vendors perform services, such as a local gasoline service or body shop. Note that characterizing a facility as one maintenance facility type over another will not alter the maintenance and administrative facility performance measure.

Service Vehicle Inventory

Transit agencies are required to report data on service vehicles that support revenue operations, maintain revenue vehicles, and perform transit-oriented administrative activities for which they have capital replacement responsibility.

Transit agencies report service vehicle inventory data by groups or fleets. Agencies should group vehicles into fleets if they are identical in all aspects, including vehicle type, manufacture year, primary mode, etc.

Service vehicles must be road worthy, self-propelled, or major pieces of construction equipment to be reportable to the NTD. Examples of reportable service vehicles include: automobiles used by supervisors or maintenance staff, wreckers, tow trucks, work trains, tampers, diggers, etc. Flatbed train cars, golf carts, and small fork lifts are not considered reportable service vehicles.

¹⁰ Federal Transit Administration, U.S. Department of Transportation, “TAM Facility Performance Measure Reporting Guidebook: Condition Assessment Calculation”, Version 1.2, March 2018

¹¹ Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide

C.2 ASSET PORTFOLIO AS OF 12-31-17

Pace owns 12 administrative and maintenance support facilities throughout Northeast Illinois, and also uses 10 support facilities owned by others to provide service. Pace's administration and maintenance support facilities contain a mix of offices, garage, storage, and repair functions. The South Holland Garage does not include repair facilities, but acts as the acceptance facility for new revenue vehicles. Table C - 1 provides a list of Pace's current support facilities, along with their address, the year they were built (if available), and their condition rating (for facilities for which Pace has capital responsibility; otherwise, N/A is listed to indicate "not applicable").

In addition, a fleet of 171 non-revenue vehicles are used at these facilities and in the field to ensure the efficient management of bus service as well as maintain fixed assets such as buildings, grounds, and passenger stations.

Pace's non-revenue fleet consists of vehicles of various make, model and manufacturer procured between 1994 and 2017. This fleet consists of on-highway vehicles as well as other specialty support equipment. Table C - 2 displays more information on Pace's non-revenue vehicle fleet, including vehicle type, model year, age, useful life benchmark (ULB, as determined by eligibility for replacement grants), the quantity in service, and the percentage of useful life remaining as of 2017.

In addition, Pace considers the Farebox System to be part of the Support Facilities and Equipment asset category.

Table C - 1: Support Facilities Inventory as of 12/31/2017

ASSET NAME	ADDRESS	YEAR BUILT (RENOVATED)	CONDITION RATING
Pace-Owned Administration and Maintenance Facilities			
Admin HQ	550 W Algonquin Rd, Arlington Heights	2009	4
Fox Valley Division	400 Overland Dr., North Aurora	1994	3
Heritage Division	9 Osgood St., Joliet	1926 and 1985	1
McHenry Paratransit	5007 Prime Parkway, McHenry	2001	3
North Division	1400 W. Tenth St., Waukegan	1987 (2002)	3^
North Shore Division	2330 Oakton St., Evanston	1994 (1995)	3
Northwest Division	900 E., Northwest Highway, Des Plaines	1962 (1994)	1
River Division	975 S. State, Elgin	1989 (1998)	3^
South Division	2101 W. 163rd Place, Markham	1988 (2017)	3~/4^
South Holland	405 W. Taft Dr., South Holland	1984 (1993)	1~
Southwest Division	9889 S. Industrial Dr., Bridgeview	1994	3
West Division	3500 W. Lake St., Melrose Park	1986	2
<i>Total Pace-Owned Administration and Maintenance Facilities = 12</i>			
Non-Pace-Owned Administration and Maintenance Facilities			
Pace Chicago 10th Floor	547 W. Jackson, Chicago	(2006)	N/A
Pace Chicago 8th Floor	547 W. Jackson, Chicago	(2018)	N/A
80-86 N. Lively - Printshop	80-86 N. Lively Boulevard, Elk Grove Village	(2010)	N/A
515 W. Algonquin - Vanpool	515 W. Algonquin Rd., Arlington Heights	(2013)	N/A
Pace East Dundee	401 Christina Dr., East Dundee	(2016)	N/A
<i>Total Non-Pace-Owned Administration and Maintenance Facilities = 5</i>			

ASSET NAME	ADDRESS	YEAR BUILT (RENOVATED)	CONDITION RATING
Non-Pace-Owned - Purchased Service Administration and Maintenance Facilities			
City of Highland Park	1150 Half Day Road, Highland Park	(1974)	N/A
Village of Niles	6859 West Touhy Avenue, Niles	(2001)	N/A
First Student - Glen Ellyn	22 W 760 Poss Street, Glen Ellyn	(1976)	N/A
First Student - Naperville	31 W330 Schoger Drive, Naperville	(1994)	N/A
First Student - Westmont	250 West 53rd Street, Westmont	(1967)	N/A
MV Transportation – Batavia	1896 Suncastr Lane, Batavia, IL 60510	(2006)	N/A
MV Transportation – Romeoville	720 Parkwood Avenue, Romeoville, IL 60446	(1970)	N/A
Cook DuPage Transportation	1200 W. Fulton, Chicago, IL 60607	(1942)	N/A
First Transit – Chicago	615 W. 41st Street, Chicago, IL 60609	(1952)	N/A
MV Transit – Chicago	4400 W. 45th Street, Chicago, IL 60632	(1955)	N/A
SCR Transportation	8801 S. Greenwood Ave., Chicago, IL 60619	(2013)	N/A
First Transit – Grayslake	39 Ziegler Drive, Grayslake, IL 60030	(1987)	N/A
First Transit Joliet	2085 Oak Leaf, Joliet, IL	(1995)	N/A
First Transit West Cook	2020 Indian Boundary Dr., Melrose Park, IL	(1970)	N/A
MV Transportation – Alsip	12500 Lombard Lane, Alsip, IL 60803	Unavailable	N/A
MV Transportation – Niles	6230 W. Gross Point Road, Niles, IL 60714	(1974)	N/A
Ride Right – Batavia	1375 Paramount Parkway, Batavia, IL 60510	(1990)	N/A
Aurora Township	80 N. Broadway, Aurora, IL 60505	(1968)	N/A
<i>Total Non-Pace-Owned Purchased Service Administration and Maintenance Facilities = 18</i>			
<i>Total Administration and Maintenance Facilities = 35</i>			

Table C - 2: Non-Revenue Fleet Inventory as of 12/31/2017

FLEET	VEHICLE TYPE	MODEL YEAR	AGE	ULB	QUANTITY	PERCENT OF ULB REMAINING
Chevy C7H042	Truck	1991	26	10	1	-160%
Chevy C7H042	Truck	1994	23	10	1	-130%
GMC C7H042	Truck	1994	23	10	1	-130%
International 4170	Truck	1995	22	10	4	-120%
International 4700	Truck	1995	22	10	2	-120%
Ford F350	Truck	2000	17	10	1	-70%
Ford F150	Truck	2005	12	10	1	-20%
Chevy Malibu	Auto	2009	8	5	1	-60%
Dodge Caravan	Auto	2009	8	5	4	-60%
Ford F250	Truck	2009	8	10	2	20%
Ford Focus	Auto	2009	8	5	9	-60%
Chevy Impala	Auto	2010	7	5	12	-40%
Ford E350	Auto	2010	7	5	18	-40%
Ford F150	Truck	2010	7	10	2	30%
Ford F350	Truck	2010	7	10	10	30%
Ford Focus	Auto	2010	7	5	36	-40%
Ford E350 Cube Van	Truck	2012	5	10	2	50%
Ford F250	Truck	2012	5	10	1	50%

FLEET	VEHICLE TYPE	MODEL YEAR	AGE	ULB	QUANTITY	PERCENT OF ULB REMAINING
Dodge Ram 1500	Truck	2013	4	10	3	60%
Ford Explorer	Auto	2013	4	5	12	20%
Ford Transit Connect Mini	Auto	2013	4	5	5	20%
International 7400	Truck	2013	4	10	1	60%
Ford Focus	Auto	2013	4	5	3	20%
Ford Focus - Electric	Auto	2014	3	5	1	40%
Dodge Grand Caravan	Auto	2016	1	5	3	80%
Ford F150	Truck	2016	1	10	1	90%
Ford F350	Truck	2016	1	10	1	90%
Ford Taurus	Auto	2016	1	5	26	80%
Ford Explorer	Auto	2017	0	5	2	100%
Ford Taurus	Auto	2017	0	5	4	100%
Freightliner 35T	Truck	2017	0	10	1	100%
<i>Total</i>					171	53% Past UL

C.3 ASSET CONDITION

C.3.1 CONDITION ASSESSMENT

The condition ratings reported in this Plan for most of Pace’s support facilities assets (all those in the table above not marked with a ^ or ~ symbol) are based on results from RTA’s Capital Optimization Support Tool (COST), which has been used in prior years to assess transit capital investment needs across the Chicago region (including for the Chicago Transit Authority and Metra). The COST condition rating process is based on the FTA’s TERM-Lite software which uses an age/decay-curve based approach for asset condition estimation, and since 2014 has been supplemented by a small sample of actual asset condition observation-based ratings. At that time, the RTA asset condition sampling forms were tailored at a high level and used to gather general site and building conditions by visual observation only, using the TERM scale in Table C - 3 below. For many assets, the condition data were collected for individual components and scores were aggregated into a single, overall condition score for that asset.

The condition ratings for some facilities (those marked in the table above with a ^ or ~ symbol) were adjusted based on desktop review of the Revenue Services and Facilities Maintenance departments, respectively.

In all cases, the condition scores follow the FTA-defined condition ratings of one (poorest condition) to five (best condition), as shown in Table C - 3.

Table C - 3: Support Facilities Condition Rating Levels

CONDITION	DEFINITION
5 (Excellent)	No visible defects, new or near new condition, may still be under warranty if applicable
4 (Good)	Good condition, but no longer new, may have some slightly defective or deteriorated component(s), but is overall functional
3 (Adequate)	Moderately deteriorated or defective components; but has not exceeded useful life
2 (Marginal)	Defective or deteriorated component(s) in need of replacement; exceeded useful life
1 (Poor)	Critically damaged component(s) or in need of immediate repair; well past useful life

In October 2017, Pace contracted WSP to conduct condition assessments of our facilities. While this commenced for passenger facilities in 2018, support facilities will not begin to be assessed until 2019. Per FTA requirements, the assessments will evaluate each of 10 components of a maintenance/administrative facility: substructure, shell, interiors, elevators, plumbing, HVAC, fire protection, electrical, site, and equipment. Equipment includes components such as lifts, floor scrubbers, generators, etc.

WSP will assign each of these component categories a score, using the scale found in Table C - 3, and develop a composite rating for the facility based on these individual component scores. These scores will be used for required reporting in the National Transit Database (NTD), and to measure performance against annual targets.

For non-revenue vehicles, condition is measured based on the asset's age relative to its useful life benchmark, as per FTA guidance. A useful life benchmark is the expected lifecycle of a capital asset for a particular Transit Provider's operating environment, or the acceptable period of use in service for a particular Transit Provider's operating environment.

C.3.2 CURRENT CONDITION INFORMATION AND PERFORMANCE TARGETS

Condition information for Pace's support facilities is reported by facility in Table C - 1, while Table C - 2 contains information on the ULB used to assess the condition of equipment, and the percentage of useful life remaining (as of 2017) for each type of equipment based on the year it was manufactured. A negative number indicates that the asset is life-expired, though is still being maintained for safe usage.

With the introduction of TAM, Pace has been required since 2017 to develop performance targets for the assets for which we have capital replacement responsibility. For maintenance and administrative support facilities, the performance target must reflect the "percentage of facilities with a condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) scale (1=Poor to 5=Excellent)."¹²

"Beginning in Report Year 2019, agencies must upload a narrative report to the NTD that outlines performance targets and their progress toward those targets. This narrative may include any changes in transit system conditions that may affect progress toward targets. There is no prescribed format for the narrative report."¹³

Information on Pace's performance targets for support facilities and equipment is contained in Table C - 4. Performance Targets are developed per FTA's guidance for support facility locations where Pace has capital responsibility, and non-revenue services vehicles/equipment.

¹² Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide

¹³ Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide

Table C - 4: Performance Targets for Support Facilities and Non-Revenue Vehicles

ASSET TYPE	QUANTITY (1/1/2018)		CONDITION LESS THAN 3 (1/1/2018)	NEW CONSTRUCTION (2018)	QUANTITY (12/31/2018)	2018 TARGET
Maintenance and Administrative Facilities	12		33%	0	12	33%
ASSET TYPE	ACTIVE FLEET* (1/1/2018)	PAST UL (1/1/2018)	ADDITIONAL PAST UL (12/31/2018)	TOTAL REPLACEMENTS (2018)	PROJECTED PAST UL (12/31/2018)	2018 TARGET
Non-Revenue Fleet	171	53%	20	13	98	57%

* Excludes legal holds, contingency, vehicles in process of disposal, and new vehicles received but not yet put in service.

C.4 LIFECYCLE MANAGEMENT STRATEGIES

C.4.1 OVERVIEW

Pace has developed several processes to best manage the lifecycle of our support facilities, non-revenue vehicles, and equipment assets. These include a detailed maintenance manual prescribing planned maintenance and useful life information for the agency’s assets, processes to ensure contractor quality and completion, and strict guidelines for disposal of assets. Maintenance and repair is conducted by contractors at regular vehicle maintenance shops throughout the region and Facility Maintenance typically manages the large assets, or anything fixed to the building. The Non-Revenue Fleet Administrator manages maintenance of the non-revenue fleet.

The following sections of the Support Facilities and Equipment Appendix go into additional detail regarding the lifecycle management strategies Pace employs on a regular basis.

C.4.2 MAINTENANCE

Pace has developed the *Rolling Stock, Facilities, and Equipment Maintenance Manual*, and the *Facility Maintenance Plans and Practice Overview and Procedures for Inspections*, which describe the agency’s standard operating procedures required to maintain the system. The four core goals of the maintenance manual can be broadly described as safety, performance, efficiency, and professionalism.

These four goals ensure that 1) safety and comfort of the agency’s passengers are the primary consideration of all maintenance functions, 2) the fleet is serviced at a rate that covers the needs of the agency and addresses any emergencies that might arise, 3) the lowest cost is maintained without sacrificing safety, and 4) maintenance is technologically current.

All equipment shall be maintained as listed in the Pace Facility Maintenance Log Book. The frequency of inspections and services shall be no less than those recommended by the manufacturers. In the event there is no recommended service frequency in the Pace

Facility Maintenance Log Book, the Maintenance Superintendent shall consult the Section Manager of Facility Maintenance at Corporate to determine the frequency.

All inspections, service and repairs shall be authorized and documented using Oracle eAM as well as forms in the Pace Facility Maintenance Log Book. From these documentation procedures, the Maintenance Superintendent shall prepare a monthly report including inspections, services, and equipment breakdowns.

Planned Maintenance

The Pace *Rolling Stock, Facilities, & Equipment Maintenance Manual* prescribes frequencies by which equipment assets are inspected. This planned maintenance ensures that Pace’s assets maintain a state of good repair. Table C - 5, contains an example of planned maintenance frequencies. Company cars, uniquely, are the responsibility of the Non-Revenue Vehicle Fleet Administrator who reports directly to the Deputy Executive Director in External Relations. If any repair work will cost more than \$500, the Non-Revenue Vehicle Fleet Administrator reviews and determines whether to move forward.

The Maintenance Management and Accident Management providers are required to provide annual reviews each year. The Non-Revenue Fleet Administrator also performs fleet vehicle inspections on an annual basis.

Table C - 5: Examples of Planned Maintenance Frequency

ASSET	MAINTENANCE FREQUENCY
Service Trucks	Every 5,000 miles / 3 months
Cars	Every 5,000 miles / 6 months
Lifts – Sefac	Annually
Lifts – Advantage (heavy duty)	Annually
Motorized Floor Scrubbers	Annually
Generators	Biannual

Building inspections of facilities are conducted by Facilities Maintenance on a biannual basis. Division staff (e.g., Building Maintainers) conduct inspections of maintenance facilities more frequently. In addition, staff based at the South Holland garage conduct monthly inspections of passenger facilities. Some contractors are required to conduct preventative maintenance which is tracked in Oracle eAM.

Unplanned Maintenance

The decision to replace equipment is typically made when it becomes undependable and requires frequent repair. Field personnel may report problems with equipment to the supervisor, who would then make a request for replacement. Requests are centrally reviewed and prioritized. The Department Manager for Capital Financing and Infrastructure reviews repair expenses associated with different pieces of equipment, which may also lead to recommended replacement candidates.

When a defect at a facility is identified, it is reported to the Division Superintendent of Maintenance. The Supervisor calls the Facility Maintenance Specialist in Facilities Maintenance (FM) assigned to the area to report the defect. In some cases, the Facility Maintenance Specialist may advise that the Revenue Services (RS) Building Maintainer

can address the defect, however, if this is not the case, then the Facility Maintenance Specialist will call the appropriate vendor.

Contract Maintenance

Non-revenue drivers call into one contractor that acts as a middleman, and directs the driver to the appropriate location for repairs. This master contractor also ensures that that charges at individual shops are in line with what is expected.

Pace has several on-call contracts in place for Facilities Maintenance. When the Facility Maintenance Specialist calls a vendor, they must provide a Facilities Maintenance number (FM number), which is equivalent to a purchase order number, specific to the job. The FM number is generated through Oracle eAM, which is also where costs are tracked. For service calls more than \$500, the vendor must send a quote before performing service, and the quote must be reviewed and approved by the FM Manager before work commences. Maintenance work carried out by vendors that does not exceed \$500 is tracked in Oracle, and will be assigned an FM number.

C.4.3 CAPITAL INVESTMENT

Decisions about replacement of equipment are typically made once equipment becomes unreliable, requiring frequent repair. Field personnel can report problems with equipment to their Supervisor, who determines whether replacement is necessary, and if so, makes a request to Purchasing for the new equipment. Requests are centrally reviewed and prioritized. The Department Manager for Capital Financing and Infrastructure reviews expenditures on repair of various types of equipment, which may also lead to recommendations for replacement of equipment.

With respect to Pace's Farebox System, Pace hired IBI Group in 2017 to review existing on-board and garage Farebox infrastructure to recommend a way-forward strategy that may include refurbishment or replacing the Farebox System. The IBI study included a review of existing Farebox asset inventory, operations and maintenance procedures, and pertinent issues and needs for improvements. The data collected contributed to a comprehensive needs assessment of the existing Farebox system environment. These high-priority needs included better access to data, reduction in maintenance costs, and a reduction in system failure risk. The Farebox System replacement is programmed in the Pace Five-Year 2019-2023 Capital Program. See Section 7, Investment Prioritization.

C.4.4 DISPOSAL

There are three reasons for an asset disposal:

- Item has exceeded its useful life and is either no longer needed or no longer functioning;
- Item has not met its useful life but is no longer functioning or has been damaged or destroyed;
- Item has been reported lost or stolen.

When disposal is necessary, an Asset Disposal Form is completed by the division or department that holds or is responsible for the asset. The form is submitted to

Accounting and the Fixed Asset Accountant review the asset to determine if there is any remaining useful life. If there is, then that is noted on the form. The form is then approved by the Section Manager, Accounts Payable/Receivable and also the Section Manager, Grants Administration and the Department Manager – Capital Financing & Infrastructure if the asset is capital funded. The Fixed Asset Accountant determines whether an asset should be disposed of by the Using Department or the Purchasing Department. The Purchasing Department is responsible for obtaining payment for the sale of an asset, and forwarding those funds directly to the Finance Department. If the proceeds from the asset exceed a certain dollar value or have remaining useful life, then Capital Financing and Infrastructure will coordinate repayment to the funding agency and obtain concurrence. Pace has an agreement with the FTA that allows Pace to retain all funds due back to the FTA, with the assurance that Pace acquire new assets with the funds and give the FTA 100% equity in those assets.

For non-revenue vehicles, a request is made from Purchasing for the vehicle title via a Title Request Form. Accounting removes the title from their files and obtains signature from the requestor who is handling the vehicle sale.

C.4.5 SUPPLY CHAIN AND PROCUREMENT

Determinations about whether something is handled by Facilities Maintenance (FM) or Design and Construction (D&C) is primarily based on scale – larger projects, and anything that requires Architecture and Engineering support, goes to D&C. Smaller projects that would be handled by FM may also be bundled into one larger improvement contract to get a better value. Due to this process, it is standard at Pace that FM manages the procurement of equipment and the Non-Revenue Fleet Administrator handles the procurement of Non-Revenue vehicles. Other projects involving traditional facility maintenance at the various divisions may be administered and procured by Materials Management.

All non-revenue vehicles are received and inspected at Headquarters by the Non-Revenue Fleet Administrator, and if suitable, are accepted for service. A monthly vehicle in-service report is distributed by Accounting and staff make updates as to whether vehicles have been placed into service. When they go into service, the asset record is activated and begins depreciating. Accounting receives the titles for the vehicles and verifies the vehicle identification number against the fixed asset record. The Pace assigned vehicle number is written on the vehicle title. All titles are stored in a secured room and are not removed until the vehicle is sold or if it is involved in an accident and must be removed from service. The Non-Revenue Fleet has a 5-year replacement plan that is reviewed and updated every 6 months.

C.5 ASSET MANAGEMENT ENABLERS

C.5.1 ORGANIZATION

Facilities Maintenance is responsible for operations and maintenance of Pace's support facilities. Facility Maintenance Specialists oversee contractors working on equipment (assets fixed to the building). Facilities Maintenance is responsible for the HVAC and mechanical systems, roofing, and other building elements. There are three Facility

Maintenance Specialists within the Facilities Maintenance group, one is assigned to the Northern divisions and another to the Southern divisions. There is one Senior Facility Coordinator for all the garages. They are responsible for receiving service calls and determining whether an in-house Building Maintainer can troubleshoot the issue, or whether the issue requires specialized knowledge and expertise, in which case an existing on-call vendor is called. The Facility Maintenance Specialist oversees work undertaken by vendors.

Building Maintainers, stationed at each division, are members of the Bus Operations / Revenue Services Division. Building Maintainers are responsible for interior work, changing filters, and other routine maintenance tasks. They may receive direction from Facilities Maintenance regarding defects.

Design and Construction is responsible for midlife rehabs, expansions, and other larger projects, including anything that requires architectural and engineering (A&E) services. D&C is comprised of 12 staff, including a Section Manager, seven Capital Construction Project Managers, three Contract Administrators, and one Environmental Coordinator. Capital Construction projects typically range from \$200,000-\$10,000,000 with around 12 active projects at any time.

C.5.2 TECHNOLOGY

Pace relies on several software applications to support improved performance management and decision making including Fleetwatch Fuel and Fluids Management System, Oracle Enterprise Asset Management (eAM), and Oracle Application Express (APEX). APEX is used to record all asset information. The records in APEX are used to track cost, useful life, depreciation, grant funding, location, and the status of the asset. The application also has many reporting capabilities.

C.5.3 ASSET KNOWLEDGE AND INFORMATION

Pace relies on Oracle eAM to record facilities assets, of which there are approximately 2,500 throughout all the divisions. Pace transitioned to eAM from Maximo four years ago. eAM has a system for including parent/child relationships, but it is more complicated than what the previous Maximo system, which has led to some delays in adding information to eAM.

Information on specific assets can be pulled up within eAM; however, there is no comprehensive inventory of all items installed at facilities and their individual costs; items that are part of buildings (e.g., HVAC or electrical systems) are not tagged as separate assets.

Oracle eAM contains information that would allow the Department Manager for Capital Financing and Infrastructure to assess which facilities are spending the most money or having the most issues, including looking at specific assets.

C.5.4 ASSURANCE

Pace will solicit input from additional departments as a form of quality assurance. This ensures that a cross-section of the agency reviews the proposed policy and/or procedure before it is acted upon. For example, those employees who manage the

garages often provide input on how equipment is used to inform current and future procurement. Vendors that Pace works with will also provide information on their equipment as specifications are being developed.

Consistent with auditing standards and because of limited resources, Internal Audit develops an annual audit plan based on an annual risk assessment. Walk-through facility inspections are included in the plan with a goal to complete six Pace and six contractor facilities annually. The maintenance records are observed as part of the inspection. Walk through facility inspections are not as comprehensive as audits. More comprehensive compliance with maintenance procedures audits are conducted per a management request or based on high risk.

C.6 CAPITAL PLANS

In FY2019 through FY2023, Pace expects to spend approximately \$143 million on support facilities and equipment. Table C - 6 below provides a snapshot of Pace’s anticipated capital spend in this asset class.

Table C - 6: Support Facilities and Equipment Capital Budget Forecast (\$000s)

PROJECT	2019 BUDGET	2020 FORECAST	2021 FORECAST	2022 FORECAST	2023 FORECAST
Improve Support Facilities	\$2,063	\$7,900	\$2,000	\$-	\$6,500
Computer Systems/Hardware & Software	500	1,000	1,000	1,000	1,000
Support Equipment/Non-Revenue Vehicles	600	1,000	1,000	1,000	1,000
Farebox System	250	5,000	5,000	5,000	2,500
Associated Capital	6,000	4,000	3,000	-	5,000
Preventative Maintenance	3,000	7,250	6,980	6,808	6,633
New Northwest Division Garage	46,800	-	-	-	-
Office Equipment/Furniture	100	500	500	500	500
Total	\$59,313	\$26,650	\$19,480	\$14,308	\$23,133

D. APPENDIX D – ROLLING STOCK (REVENUE VEHICLES)

D.1 ASSET DEFINITION

In the *NTD 2017-2018 Asset Inventory Module Reporting Guide*, the FTA lays out the following guidance and definitions with respect to Rolling Stock:¹⁴

Revenue Vehicles

All transit agencies reporting service data must provide information on revenue vehicles by mode and type of service.

Transit agencies must inventory all revenue vehicles they use to provide public transportation that have not been sold or disposed of at the end of the fiscal year. This inventory identifies the vehicles in the total fleet and includes all revenue vehicles in the following situations.

- *Vehicles in operation (i.e., providing revenue service)*
- *Vehicles awaiting sale or disposal*
- *Vehicles out for long-term repair*
- *Vehicles in storage*
- *Vehicles retained as part of an FTA-approved emergency contingency plan*

Transit agencies report revenue vehicle inventory data by groups or fleets. Agencies should group vehicles into fleets if they are identical in all aspects, including vehicle type, manufacture year, model, and funding source, etc.

D.2 ASSET PORTFOLIO AS OF 12-31-17

As of the end of 2017, Pace’s rolling stock assets used in revenue service include 780 Fixed Route Buses, 501 Paratransit vehicles, 695 Vanpool vans, and 122 Community Transit Service (CTS) vehicles. More information on Pace’s revenue vehicles, including quantity by fleet, length, and year of manufacture is included in Table D - 1.

Table D - 1: Rolling Stock Summary Inventory as of 12/31/17

ACTIVE FLEET	LENGTH	MANUFACTURE YEAR	QUANTITY	ULB	PERCENT OF ULB REMAINING
Fixed Route Buses					
NABI	35'	2002	13	12	-25%
NABI	35'	2003	33	12	-17%
NABI	40'	2003	47	12	-17%
Orion	40'	2004	6	12	-8%
NABI	40'	2005	56	12	0%
Eldorado	30'	2006	31	12	8%

¹⁴ Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide



Appendix D – Rolling Stock (Revenue Vehicles)

ACTIVE FLEET	LENGTH	MANUFACTURE YEAR	QUANTITY	ULB	PERCENT OF ULB REMAINING
Eldorado	30'	2007	78	12	17%
Eldorado	30'	2008	31	12	25%
Eldorado	30'	2009	24	12	33%
Eldorado	30'	2010	57	12	42%
Eldorado	30'	2011	4	12	50%
Orion Hybrid	30'	2011	2	12	50%
Eldorado	40'	2012	14	12	58%
Eldorado	40'	2013	63	12	67%
Eldorado	40'	2014	37	12	75%
Eldorado CNG	40'	2014	1	12	75%
MCI	40'	2014	13	12	75%
Eldorado	40'	2015	46	12	83%
Eldorado CNG	40'	2015	19	12	83%
MCI	40'	2015	9	12	83%
Eldorado	40'	2016	89	12	92%
Eldorado	40'	2017	24	12	100%
Eldorado CNG	40'	2017	68	12	100%
MCI	40'	2017	8	12	100%
Trolley	40'	2017	7	12	100%
<i>Total Fixed Route Buses</i>			<i>780</i>		<i>20% Past UL</i>
Paratransit					
Chevy G3500	21'	2007	2	4	-150%
Eldorado Aerotech	23'	2008	11	4	-125%
Eldorado Aerolite	22'	2009	18	4	-100%
Eldorado Aerotech	23'	2009	39	4	-100%
Eldorado Aerolite	22'	2010	20	4	-75%
Eldorado Aerotech	23'	2010	109	4	-75%
Eldorado Aerotech	25'	2014	156	4	25%
Champion Challenger	22'	2014	97	4	25%
Eldorado Aerotech	25'	2016	49	4	75%
<i>Total Paratransit</i>			<i>501</i>		<i>40% Past UL</i>
Vanpool					
Ford Windstar	17'	2003	1	5	-180%
Ford Econ E350S	18'	2005	5	5	-140%
Chevy Uplander	17'	2006	5	5	-120%
Ford Econ E350S	18'	2006	12	5	-120%
Chevy Uplander	17'	2007	3	5	-100%
Ford Econ E350S	18'	2007	7	5	-100%
Ford Econ E350S	19'	2008	4	5	-80%
Dodge Caravan	17'	2009	8	5	-60%
Ford E350	20'	2009	9	5	-60%
Dodge Caravan	17'	2010	3	5	-40%
Ford E350	20'	2010	31	5	-40%
Dodge Caravan	17'	2011	8	5	-20%
Ford E350 Super Duty	19'	2011	33	5	-20%
Dodge Grand Caravan	17'	2012	65	5	0%

ACTIVE FLEET	LENGTH	MANUFACTURE YEAR	QUANTITY	ULB	PERCENT OF ULB REMAINING
Dodge Grand Caravan	17'	2013	104	5	20%
Ford E350	18'-20'	2013	136	5	20%
Dodge Caravan SXT	17'	2016	20	5	80%
Ford Transconnect	20'	2016	20	5	80%
Ford Transit 350 Lr	20'	2016	48	5	80%
Dodge Caravan	17'	2017	122	5	100%
Ford Transit	19'	2017	51	5	100%
<i>Total Vanpool</i>			695		<i>28% Past UL</i>
Community Transit Service					
Chevy G3500	21'	2007	33	4	-150%
Chevy Champion Crusader	21'	2012	8	4	-25%
Dodge Caravan	17'	2013	10	4	0%
Ford E350	18'-20'	2013	24	4	0%
Chevy Champion Crusader	23'	2014	20	4	25%
Chevy Champion Crusader	23'	2016	5	4	75%
Chevy Champion Crusader	23'	2017	22	4	100%
<i>Total Community Transit Service</i>			122		<i>61% Past UL</i>
Total Active Revenue Vehicles			2098		30% Past UL

At the present time for the ADA service in the City of Chicago, Pace utilizes private contractors who own their vehicles. The ADA private contractor fleet is comprised of 775 vehicles which have not been individually listed in a separate table. This inventory will be included in the NTD reporting.

D.3 ASSET CONDITION

D.3.1 CONDITION ASSESSMENT

Per FTA requirements, Pace measures rolling stock condition based on age relative to useful life benchmarks (ULB). A useful life benchmark is the expected lifecycle of a capital asset for a particular Transit Provider's operating environment, or the acceptable period of use in service for a particular Transit Provider's operating environment.

D.3.2 CURRENT CONDITION INFORMATION AND PERFORMANCE TARGETS

Table D - 1, above, contains information on the ULB used to assess the condition of rolling stock, and the percentage of useful life remaining (as of 2017) for each type of fleet based on the year it was manufactured. A negative number indicates that the asset is life-expired, though is still being maintained for safe usage.

With the introduction of TAM, Pace has been required since 2017 to develop performance targets for the assets for which we have capital replacement responsibility. For rolling stock, the performance target must reflect the “percent of revenue vehicles that they expect will meet or exceed their Useful Life Benchmark.”¹⁵

¹⁵ Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide

"Beginning in Report Year 2019, agencies must upload a narrative report to the NTD that outlines performance targets and their progress toward those targets. This narrative may include any changes in transit system conditions that may affect progress toward targets. There is no prescribed format for the narrative report."¹⁶

Information on Pace’s FTA-required performance targets for rolling stock is contained in Table D - 2.

Table D - 2: Performance Targets for Rolling Stock

ASSET TYPE (UL YEARS)	ACTIVE FLEET* (1/1/2018)	PAST UL (1/1/2018)	ADDITIONAL PAST UL (12/31/2018)	TOTAL REPLACE- MENTS (2018)	PROJECTED PAST UL (12/31/2018)	2018 TARGET
Fixed Route Buses (12)	780	20%	31	70	116	15%
Paratransit (4)	501	40%	253	212	240	48%
Community Transit (4)	122	61%	20	11	84	69%
Vanpool (5)	695	28%	240	151	283	41%

* Excludes legal holds, contingency, vehicles in process of disposal, and new vehicles received but not yet put in service.

D.4 LIFECYCLE MANAGEMENT STRATEGIES

D.4.1 OVERVIEW

Pace has developed the *Rolling Stock, Facilities, and Equipment Maintenance Manual*, which describes the agency’s standard operating procedures required to maintain the system. The four core goals of the maintenance manual can be broadly described as safety, performance, efficiency, and professionalism.

These four goals ensure that 1) safety and comfort of the agency’s passengers are the primary consideration of all maintenance functions, 2) the fleet is serviced at a rate that covers the needs of the agency and addresses any emergencies that might arise, 3) the lowest cost is maintained without sacrificing safety, and 4) maintenance is technologically current.

Pace’s Maintenance and Technical Services Department is responsible for managing and maintaining buses throughout their lifecycle, reflecting four broad goals categorized under safety, availability of rolling stock, efficiency, and professionalism. The lifecycle management strategies for rolling stock at Pace are detailed in sections D.4.2 through D.4.5 below.

D.4.2 MAINTENANCE

Fixed Route Vehicles

PRE-TRIP INSPECTIONS AND WORK ORDERS

Each driver is required to perform a pre-trip inspection of his/her rolling stock prior to pullout. The driver inspects the bus and documents the inspection, including any problems with the bus, on a “Bus Pre-Trip Card.” All hard copies are returned to the

¹⁶ Federal Transit Administration, U.S. Department of Transportation, National Transit Database Asset Inventory Module 2017-2018 Reporting Guide

Maintenance Department for processing, and any noted defects are entered in Oracle eAM, a work order generated, and the hard copy attached to the work order.

When it is determined that a work order is necessary, a Maintenance Superintendent or designee shall prepare a Work Order utilizing Oracle eAM, a work order form, and the corresponding facility codes. An employee assigned to a work order will evaluate the work and request clarification from the foreman if necessary. The employee executes the work order, and the Maintenance Superintendent or designee reviews the Work Order for completeness and accuracy and proceeds to close out the work order once the work has been verified.

DAILY SERVICING

In addition to Pre-Trip Inspections, in-service rolling stock is serviced daily, ensured by the Maintenance Superintendent. Daily Servicing involves:

- Fueling the rolling stock vehicle
- Checking other fluids and filling as needed: engine oil, transmission oil, glycol
- Checking of air filter indicators
- Cash box dump into fare collection vault
- Tires checked
- Notation of all defects
- Washing/cleaning of interior and exterior

PREVENTATIVE MAINTENANCE

Preventative Maintenance includes inspection of the rolling stock, scheduled oil changes, lubrication, adjustments, service, and repairs that are performed during the inspection/servicing and documented on the appropriate forms. The Maintenance Superintendent or designee prints the Scheduled Maintenance report from Oracle eAM to determine which vehicles are due for inspection, and creates a Work Order scheduling the inspections and assigning mechanics to the Work Orders. The Preventative Maintenance Inspections (PMI) forms and the Lift-U Preventative Maintenance shall be performed under a work order by the assignment mechanic at the scheduled mileage intervals. Defects found during the PMI must be recorded on the Preventative Maintenance Defect Sheet (PMDS), and any minor repairs made during the PMI should be recorded on the PMI Work Order. After the PMI Work Order, PMDS, PMI Forms, Lift-U PM Sheet, and brake test results are forwarded to the Maintenance Superintendent or designee, the PMI Work Order should be closed out with all work recorded in Oracle and a new work order will be opened with all defects found and not repaired from the PMDS.

DAMAGE AND COLLISION REPAIRS

Pace policy dictates that all collision-damaged rolling stock be reported as required in an Accident/Incident Report, and shall have repair authorization or direction from the Senior Inspector at South Holland. The accident reporting instructions include:

- All rolling stock accidents must be reported immediately to the garage Dispatcher, who then notifies the Safety Supervisor or Transportation Superintendent.

- If it is a service accident or accident with personal injuries, the Dispatcher must also notify Pace Headquarters, Revenue Services Department Manager.
- The vehicle driver must then fill out the Accident Incident Report, submitted to the garage Transportation Superintendent, who forwards it to Pace Safety Department at Fox Valley Division within 24 hours.

After the Accident/Incident Report requirements have been fulfilled, the Maintenance Superintendent should determine if the garage can handle the repair in-house and call the Senior Inspector to authorize the repairs. For In-House repairs, the garage will furnish a detailed In-House estimate of the repairs (Vehicle Repair Estimate Form), while the Senior Inspector will schedule viewings for outside contractor repairs.

NON-COLLISION RELATED REPAIRS

Non-collision-related structural repairs over \$1000 need to have repair authorization or direction from the Senior Inspector at South Holland. These structural repairs include straightening, replacement, and welding of body frame and structural components. The Senior Inspector will then take the appropriate steps to have the work performed by body repair contractor, after which the Maintenance Superintendent will prepare a Bus Transfer Form. For those that are under \$1000, the Maintenance Superintendent may proceed with the work at the garage.

Vanpool Vehicles

Vanpool drivers are required to take the van in for periodic maintenance checks and repairs. Drivers are also expected to fuel the van and have it washed once per week. For convenience, the primary driver is provided with a fuel card, maintenance card, and van wash card, all valid at numerous locations throughout the Pace service region.

Paratransit Vehicles

Contractors conduct maintenance and heavy repairs of paratransit vehicles, which are inspected approximately twice per year. The Superintendent of Maintenance for Paratransit oversees the contractors, including visiting them onsite during their work. Paratransit vehicles are inspected approximately twice per year.

D.4.3 CAPITAL INVESTMENT

For asset acquisitions, property and equipment are recorded at historical cost. Pace capitalizes assets with a useful life of one year or more that is:

- a. Capital equipment
- b. Operation equipment with a unit cost of \$5000 or more
- c. Costs incurred to extend an asset's useful life as part of a fleet enhancement or major rebuild/rehabilitation program, or
- d. An item determined to be highly susceptible to loss or theft

Most of Pace's assets have been acquired through capital grant projects funded by FTA, IDOT, and the RTA. Asset Acquisition Forms do not need to be completed for vehicles, associated capital parts, capital maintenance, fleet enhancement activities, and other intangible costs. Fixed Route buses, paratransit buses and vans are set up in the fixed asset system based on their in-service date. On a monthly basis, Revenue

Services sends a listing of in-service dates for all revenue vehicles to the Senior Fixed Asset Accountant, who then establishes the fixed asset record accordingly and begins depreciating the asset.

When expanding or changing the fixed route revenue fleet, Strategic Services works with the Revenue Services group to provide information on planned expansions or other plans. The Budget Planning and Analysis Department catalogs any requests, analyzes funding sources, and engages in an iterative process to balance needs and make recommendations to Senior Staff. Senior Staff will make the final decisions while the Grants team applies for the funding.

D.4.4 DISPOSAL

At Pace, an asset is disposed of if it has exceeded its useful life and is no longer needed or functioning, or has been damaged or destroyed before its useful life, or the item has been reported lost or stolen. When disposal is necessary, an Asset Disposal Form is completed by the division or department that holds or is responsible for the asset. The form is submitted to Accounting and the Fixed Asset Accountant review the asset to determine if there is any remaining useful life. If there is, then that is noted on the form. The form is then approved by the Section Manager, Accounts Payable/Receivable and also the Section Manager, Grants Administration if the asset is capital funded. The Purchasing Department is responsible for obtaining payment for the sale of an asset, and forwarding those funds directly to the Finance Department. If the proceeds from the asset exceed a certain dollar value or have remaining useful life, then Capital Financing and Infrastructure will coordinate repayment to the funding agency and obtain concurrence. Pace has an agreement with the FTA that allows Pace to retain all funds due back to the FTA, with the assurance that Pace acquire new assets with the funds and give the FTA 100 percent equity in those assets.

For revenue vehicles, a request is made from Purchasing for the vehicle title via a Title Request Form. Accounting removes the title from their files and obtains signature from the requestor who is handling the vehicle sale.

D.4.5 SUPPLY CHAIN AND PROCUREMENT

Lifecycle maintenance cost differentials are typically not considered as part of procurement, although sometimes Maintenance may try to indicate preference for or against particular components due to cost of maintenance.

The decision to send work to a vendor is based upon an assessment of the Scope of Work, complexity of the work, and available resources. Pace uses metrics and inventory management (min/max) to assess procurement needs. Contractors typically have three to five-year terms with multiple bidders and separate contracts for engines, transmissions, repair and replacement, etc.

For work done in-house, repair and maintenance bus parts are procured and used. These items are procured by the Materials Management department using a Min-Max inventory model. Materials management is also tasked with inventory tracking and work order processing of these rolling stock parts.

D.5 ASSET MANAGEMENT ENABLERS

D.5.1 ORGANIZATION

Vehicle Maintenance is led by the Maintenance Superintendents at different Pace locations. All of the Maintenance Superintendents at the different locations report to the Senior Inspector at South Holland, who reports to the Maintenance and Technical Services Department Manager at South Holland.

D.5.2 TRAINING

New hires (both drivers and maintenance workers) undergo six weeks of training, including two weeks at the Fox Valley Centralized Training facility, and four weeks in their division. To ensure safe operations, the Safety Training/Security Manager (STSM) goes on rides with new employees, and also with employees that have had accidents or been on leave for an extended period.

There is also a quarterly refresher training in each garage, and additional training when there are changes in routes, and addition of new routes or equipment. Fork lift training is provided when new fork lifts are introduced, and retraining is provided after accidents or when the floor plan of building has changed.

Formal training is conducted via the Training Coordinator, underneath Revenue Services, and/or by user departments. Manufacturers also provide training on new fleets.

D.5.3 STANDARDS, LEGISLATION, REGULATION, AND OTHER MANDATED REQUIREMENTS

Pace's rolling stock maintenance program complies with Federal regulations for inspection, repair, and maintenance, including systematic inspection of vehicles to ensure that vehicle parts are always in working order. Maintenance practices are based on Original Equipment Manufacturer recommendations and are documented in Standard Operating Procedures.

All Pace rolling stock meet Federal Transit Administration (FTA) Standards and are tested and meet minimum requirements for service life and quality control as well as Environmental Protection Agency (EPA) Emissions Standards and Americans with Disabilities Act (ADA) Accessibility Guidelines. Federal Motor Vehicle Safety Standards apply to all motor vehicle procurements, including revenue vehicles and non-revenue vehicles, and specify the rules and regulations for motor vehicle design, construction, and performance to meet minimum safety performance and crash test requirements.

D.5.4 TECHNOLOGY

To support improved performance management and decision making, Pace relies on several software applications, including Fleetwatch Fuel and Fluids Management System, Oracle Enterprise Asset Management (eAM), and Oracle Application Express (APEX).

Oracle eAM is a comprehensive maintenance management system produced by Oracle. It tracks all functions related to the maintenance of vehicles and vehicle

maintenance equipment at Pace, including vehicle life-cycle management; repair and preventative maintenance work orders; and parts and inventory management. In addition, Oracle eAM delivers numerous efficiency and cost saving benefits, such as:

- Creating a preventative maintenance strategy
- Maximizing resource availability, including both equipment and labor
- Optimizing scheduling and resource efficiency
- Providing Asset Management and Work Management functions

However, not all maintenance personnel are on Oracle eAM or Fleetwatch, and use paper forms submitted to Maintenance Superintendents.

D.5.5 ASSET KNOWLEDGE AND INFORMATION

Oracle eAM stores information on Pace’s vehicle assets, including defects, pending work orders, daily servicing, preventative maintenance, as well as damage and collision repairs. However, not all Pace locations have access to Oracle eAM, so there are extensive processes in place for storing information with hardcopy documentation.

D.5.6 ASSURANCE

It is the responsibility of the Maintenance Superintendent at each location to ensure compliance with all rolling stock maintenance procedures and policies on a daily basis. Many of these daily responsibilities are outlined in the “Maintenance” section of this Appendix.

D.6 CAPITAL PLANS

In FY2019 through FY2023, Pace expects to spend approximately \$106 million on rolling stock. Table D - 3 below provides a snapshot of Pace’s anticipated capital spend in this asset class.

Table D - 3: Rolling Stock Capital Budget Forecasts (\$000s)

PROJECT	2019 BUDGET	2020 FORECAST	2021 FORECAST	2022 FORECAST	2023 FORECAST
30' Fixed Route Buses	\$14,000	\$13,200	\$11,200	\$8,000	\$10,000
40' Fixed Route Buses	-	-	-	9,000	-
Paratransit Vehicles	4,832	4,160	4,225	3,380	3,250
Community Transit/Call-n-Ride Vehicles	-	1,690	-	1,779	1,825
Vanpool Vehicles	7,520	-	-	-	-
Engine/Transmission Retrofits	-	2,003	2,002	2,019	2,002
Total	\$26,352	\$21,053	\$17,427	\$24,177	\$17,077

E. APPENDIX E – ELECTRICAL, SIGNAL, AND COMMUNICATIONS

E.1 ASSET DEFINITION

Electrical, Signal, and Communications is not a required reporting category for bus agencies. However, because this is a category budgeted for in Pace's Program of Projects, and because it is expected that all assets used in the provision of public transit will be included in the TAM Plan asset inventory, this Appendix contains information on Electrical, Signal, and Communications assets.

E.2 ASSET PORTFOLIO

Pace has a number of different systems, and associated assets, that comprise our Electrical, Signal, and Communications asset inventory, including a Radio System, an Automated Vehicle Location (AVL) system, an Intelligent Bus System (IBS), a Transit Signal Priority (TSP) system, and an on-bus security system called DriveCam.

The TSP system has been implemented as part of Pace's Rapid Transit Program. Pace received funding for a coordinated regional approach, and is working with local DOTs to develop a platform of signal optimization, creating a connected/interconnected system that is interoperable with CTA, and optimizes signal timing. Pace has identified 400 signals across the region for signal timing optimization, all of which should be implemented by the end of 2018. The software solution that Pace and CTA are using relies on the existing AVL system rather than adding new hardware to buses that would require additional maintenance. TSP is starting in 10 corridors, and Pace is studying options for the future. TSP is a primary component of the Pulse network.

IBS is a satellite based communications technology, used to improve the tracking of fixed route buses, collection of data, and communication between Pace and our drivers and passengers.

All Pace buses are equipped with constantly recording internal security cameras and DriveCam technology that enables external recording of eight minutes before and after incidents. These technologies promote safety of passengers and drivers, and enable Pace to identify driver behavior that may pose a safety risk.

E.3 ASSET CONDITION

Electrical, Signal, and Communications is not an FTA performance target asset category, and as such Pace does not have performance targets established for this asset class.

E.4 LIFECYCLE MANAGEMENT STRATEGIES

E.4.1 CAPITAL INVESTMENT

Pace develops long-range plans, such as *Vision 2020*, and is working on an update to this, *Vision 2040*, that identify new programs that will require procurement of new assets, such as Transit Signal Priority (TSP). New signals, electrical, or communications assets that are required to implement those programs are identified in the Capital Program once an appropriate funding source has been identified. Real-Time Information displays and related communications network are components of Pulse stations, transit stations and at many shelters, and regional installation is on-going.

E.4.2 DISPOSAL

Pace also has maintenance contracts for any hardware that is out of warranty; for example, the radio system is now coming out of warranty and so Pace is initiating a requisition for the next few years of maintenance.

Despite old technology in some cases, Pace staff manage to make the current communications system work well, and to replace items as needed since the agency cannot afford a system-wide overhaul.

Typically, these items are scrapped. In the near future, Pace hopes to build a market for these obsolete products through an upcoming auction website.

There are three reasons for an asset disposal:

- Item has exceeded its useful life and is either no longer needed or no longer functioning;
- Item has not met its useful life but is no longer functioning or has been damaged or destroyed;
- Item has been reported lost or stolen.

When disposal is necessary, an Asset Disposal Form is completed by the division or department that holds or is responsible for the asset. The form is submitted to Accounting and the Fixed Asset Accountant review the asset to determine if there is any remaining useful life. If there is, then that is noted on the form. The form is then approved by the Section Manager, Accounts Payable/Receivable and also the Section Manager, Grants Administration if the asset is capital funded. The Fixed Asset Accountant determines whether an asset should be disposed of by the Using Department or the Purchasing Department. The Purchasing Department is responsible for obtaining payment for the sale of an asset, and forwarding those funds directly to the Finance Department. If the proceeds from the asset exceed a certain dollar value or have remaining useful life, then Capital Financing and Infrastructure will coordinate repayment to the funding agency and obtain concurrence. Pace has an agreement with the FTA that allows Pace to retain all funds due back to the FTA, with the assurance that Pace acquire new assets with the funds and give the FTA 100 percent equity in those assets.

E.4.3 SUPPLY CHAIN AND PROCUREMENT

For work done in-house, repair and maintenance parts are procured and used. These items are procured by the Materials Management department using a Min-Max inventory model. Some items may also be ordered with directive given by Tech Services management, such as in preparation for an upcoming repair or new-installation campaign. Materials management is also tasked with inventory tracking and work order processing of these parts.

E.5 ASSET MANAGEMENT ENABLERS

E.5.1 ORGANIZATION

Pace's Strategic and Capital Planning group within Strategic Services focuses on longer-term planning for initiatives that rely on signal and communications improvements and modernization, including the Bus on Shoulder program, Pulse, and TSP. The Research and Analysis group relies on data collected from systems like IBS, in order to track ridership and fare payment, which inform mid to long-range planning, which may affect asset acquisition. Strategic and Capital Planning is responsible for TSP maintenance. These services are contracted to DOT approved vendors.

E.5.2 TECHNOLOGY

To support improved performance management and decision making, Pace relies on several software applications, including Oracle Enterprise Asset Management (eAM), and Oracle Application Express (APEX). Oracle Enterprise Asset Management (eAM) is a comprehensive maintenance management system. Pace uses a distributed system that monitors and feeds data back to Headquarters. Pace attempts to resolve issues first from Headquarters, before going into the field to address the issue if needed. of Pace's technological assets have extended manufacturer warranties, and are simply sent back for replacement if broken.

Fixed route uses IBS (Intelligent Bus System), a satellite based communications technology, to improve the tracking of buses, collect data, and communicate between Pace and our drivers and passengers. IBS interfaces with Trapeze. Paratransit contractors have their own communications system, using Motorola radios that were updated to use Trapeze.

TSP is monitored by a wireless centralized monitoring system developed as a component of the network. This system reviews health of system and equipment, status alerts and TSP call logs and activity.

E.6 CAPITAL PLANS

In FY2019 through FY2023, Pace does not expect to budget capital dollars on Electrical, Signal, and Communications assets.

F. APPENDIX F – ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used throughout this document.

ABBREVIATION	MEANING	ABBREVIATION	MEANING
ADA	Americans with Disabilities Act	LOS	Level of Service
AM	Asset Management	MAP-21	Moving Ahead for Progress in the 21 st Century
AMP	Asset Management Plan	MPO	Metropolitan Planning Organization
AMS	Asset Management System	NTD	National Transit Database
APEX	Application Express (Oracle)	OEM	Original Equipment Manufacturer
AVL	Automated Vehicle Location	O&M	Operations and Maintenance
A&E	Architectural and Engineering	PAS	Publicly Available Specification
CIP	Capital Investment Plan	PBV	Positive Budget Variance
CFI	Capital Financing and Infrastructure	PMI	Preventative Maintenance Inspections
CMAP	Chicago Metropolitan Agency for Planning	QA/QC	Quality Assurance/Quality Control
COST	Capital Optimization Support Tool	ROW	Right of Way
CTA	Chicago Transit Authority	RS	Revenue Services
CTS	Community Transit Service	RTA	Regional Transportation Authority
D&C	Design and Construction	SGR	State of Good Repair
EAM	Enterprise Asset Management	SOGR	State of Good Repair
FM	Facilities Maintenance	SOP	Standard Operating Procedure
FTA	Federal Transit Administration	TAM	Transit Asset Management
GIS	Geographic Information System	TAMP	Transit Asset Management Plan
HR	Human Resources	TAP	Taxi Access Program
IBS	Intelligent Bus System	TERM	Transit Economic Requirements Model
HVAC	Heating, Ventilation, and Air Conditioning	TIP	Transportation Improvement Program
IGA	Intergovernmental Agreements	TSP	Transportation Signal Priority
IDOT	Illinois Department of Transportation	UL	Useful Life
ISO	International Standards Organization	ULB	Useful Life Benchmark
IT	Information Technology	WSP	Consultant supporting Pace's TAM efforts
KPI	Key Performance Indicator		

G. APPENDIX G – TERMS AND DEFINITIONS

The following terms and definitions are used to describe aspects of asset management and have been applied in this document.

ASSET MANAGEMENT TERMS AND DEFINITIONS	
Asset	<i>ISO Definition: item, thing or entity that has potential or actual value to an organization.</i> <i>More relevant definition: A tangible item of value that is owned, managed, or leased by Pace for the purposes of providing transit services. Infrastructure assets that are repairable, replaceable, and subject to a preventative maintenance schedule or inspection or calibration or need to be tracked from a capital depreciation point of view. This does not include consumables (e.g., a filter), but does include software (the action of modifying a software version being the repair).</i>
Asset class	Refers to the sub-group of assets. Within Pace the following asset classes are referred to: Fixed Route Vehicles Vanpool Vehicles Community Vehicles Paratransit vehicles Non-revenue vehicles Maintenance and administration facilities Stations IT
Asset Hierarchy	A framework for segmenting an asset portfolio into appropriate classifications. The hierarchy is usually represented by a “parent-child” relationship between the top-level asset identifier down to the maintenance managed item (MMI). In many instances, this breakdown will include sub-systems and components (parts of asset). It is important that the asset hierarchy is applicable across all business functions so that costs, performance, and other factors can be analyzed. The framework should therefore consider both maintenance and capital planning as well as asset operation
Asset Register	A record of asset information including asset attribute data such as quantity, type, configuration, cost, condition etc. The Asset Register is structured as per the <i>Asset Hierarchy</i> .
Asset Management	<i>ISO Definition: coordinated activity of an organization to realize value from assets</i> <i>More relevant definition: Asset Management is the optimized lifecycle management of Pace’s assets. It is being able to make the right decisions based on facts, to do the right work in the right place, and to spend money where it is needed most.</i>
Asset Management Capability	<i>ISO Definition: The measure of capacity and ability of Pace to achieve our objectives.</i> In the context of this report, determined through an assessment of people, processes, technology, data & information, and the ability to provide assurance as compared to good industry practice asset management.
Asset Management Policy	<i>ISO definition: intentions and direction of an organization as formally expressed by its top management.</i> <i>More relevant definition: The overall intentions and direction of Pace related to our assets and the framework for control of asset-related processes and activities (for example, capital planning, maintenance, operations, etc.). The policy should be derived from and be consistent with Pace’s mission, vision, and values.</i>

ASSET MANAGEMENT TERMS AND DEFINITIONS	
Asset Management Objectives	<p><i>ISO definition: In the context of asset management systems, asset management objectives are set by the organization, consistent with the organizational objectives and asset management policy, to achieve specific measurable results.</i></p> <p><i>More relevant definition: Specific outcomes or achievement required of assets and asset management. These can include, for example, condition, reduction in unit costs and/or improvement in performance, as well as more organization focused objectives, including competency, capability, review, and assurance.</i></p>
Service Objectives	<p>Specific levels of service defined by Pace for the performance of the services provided. This can include frequency and location of services as well as reliability measures.</p>
Asset Management Improvement Plan	<p>Specifies the activities (change efforts, technology initiatives, training, etc.), resources and timescales required to develop Pace’s asset management capability in line with a stated objective.</p>
Asset Management Plan	<p><i>ISO definition: documented information that specifies the activities, resources and timescales required for an individual asset, or a grouping of assets, to achieve the organization’s asset management objectives.</i></p> <p><i>More relevant definition: Specifies the activities (maintenance, overhaul, replacement, and renewal), resources and timescales required for a group of assets to achieve Pace’s service and asset management objectives. This is consistent with the definition of an asset management plan in the following:</i></p> <p>BSI PAS-55: 2008 – British Standard Specification for the optimized management of physical infrastructure assets ISO-55001:2014 – International Standard for Asset Management – management system requirements. Global Forum for Maintenance and Asset Management International Infrastructure Management Manual</p>
Asset Management System	<p><i>ISO definition: set of interrelated or interacting elements of an organization to establish policies and objectives and processes to achieve those objectives.</i></p> <p><i>More relevant definition: The collection of policies, processes and procedures that control and manage the way Pace manages our assets. The management system should consider all stages of the assets lifecycle and Pace’s functions or departments that support the full lifecycle approach (including for example Capital Planning, Capital Delivery, Maintenance, and Operations). An established Asset Management System is a requirement of the FTA. The As-Is Processes Report represents an initial capture of Pace’s asset management processes.</i></p>
Enterprise Asset Management (EAM) System.	<p>The Enterprise Asset Management System or EAM system, refers to the technology application used to support the management of the assets. Through the course of the workshops this was often referred to as the ‘Asset Management System’, but for clarity is referred to in this report as the EAM system. Pace uses Oracle eAM as their EAM system.</p>
Risk Management	<p>Coordinated activities to direct and control an organization with regard to risk (From ISO31001: 2009. Risk Management Principles and Guidelines).</p>
Tactical Risk Management	<p>Defined as the use of assessment techniques based on safety or other impacts that prioritize immediate intervention requirements. These typically address issues that have occurred (non-conformities).</p>
Strategic Risk Management	<p>Defined as the use of risk management activities to support asset strategy and asset management planning purposes. This is consistent with the definition for risk management from ISO31000 set out above.</p>

END OF TAM PLAN APPENDICES