MODERNIZING METRA & INVESTING IN OUR FUTURE
CHAPTER 1: POSITIVE TRAIN CONTROL (PTC) & ROLLING STOCK

BACKGROUND

Maintaining Metra's extensive system in a state of good repair is the agency's biggest challenge. State of Good Repair (SGR) is achieved when the preventative maintenance and rehabilitation needs of all assets are met within the recommended timeframe, and no component remains in service beyond its useful life. The long-lasting nature of railroad assets gives a false impression of a fixed asset that does not wear out, but safe and reliable service depends on the perpetual maintenance and replacement of a diverse set of components: track, signals, electrical and communications equipment, rolling stock, bridges, support facilities and vehicles, and stations and customer parking facilities.

The continued deferral of capital projects has far-reaching consequences. As components degrade, service reliability suffers. A single breakdown can affect multiple lines; the failure of an important control point, for example, disrupts service on entire portions of Metra's system. As unexpected problems occur, trains are delayed and crews must work longer hours or unscheduled shifts, driving up labor costs. The poor condition of one component can accelerate wear and tear on other components—for example, track condition affects the operation of rolling stock, and vice versa. As labor and repair costs rise, more dollars are diverted from capital needs, and capital maintenance is further deferred. Losses in ridership—and fare revenue—follow the decline in service quality and reliability, meaning that even fewer funds are available to sustain the system, and the downward spiral continues. Not only does this cycle degrade the existing system, but meaningful enhancements or extensions of service to meet the region's changing transportation needs may not be feasible.

This chain of events is not conjecture—Northeast Illinois lived through it only a few decades ago. In the 1960s and 70s, the uncertain future of passenger rail led to years of disinvestment by railroads, precipitating the formation of the RTA and Metra, which ultimately purchased a number of distressed commuter rail operations. Metra inherited rail lines hobbled by derailments, speed restrictions, mechanical failures and deteriorated stations. Since that time, Metra has spent approximately $6 billion to renew its capital assets, creating the safe and reliable service riders have come to expect. Metra has also implemented significant improvements: adding dozens of new train runs, opening 31 new stations, and initiating service on the first new commuter rail line in the Chicago area in 70 years. These rebuilding and expansion projects have helped us better serve existing customers, and attract new ones. Now, the lack of available capital funding has created an inability to properly fund the care for this infrastructure and threatens the value of these investments.

In 2014, Metra programmed just over $200 million for capital maintenance and replacement projects (this does not include the State of Illinois Bond funds). However, State of Good Repair needs over the next 10 years are presently estimated at $9.9 billion; and that number is expected to grow. Metra would need to invest $320 million a year over the same period to keep up with normal reinvestment needs and an additional $6.6 billion to eliminate the accumulated backlog of capital projects. The backlog can be thought of as the total amount of deferred reinvestment actions (such as overdue asset replacements). The remaining elements of capital replacement needs include normal replacement of assets, rehabilitation of assets, and capital maintenance of assets. Capital maintenance typically represents a minor ongoing capital investment required to maintain a SGR (for example, an annual painting or paving contract). As shown in Table 1, Metra's ten-year capital needs include $6.6 billion in backlog, $2.2 billion in replacement needs, $0.8 billion in rehabilitation, and $0.3 billion in capital maintenance.

Table 1
Metra 10-Year Capital Needs

Metra Backlog and 10-Year Normal Reinvestment Needs Summary (2012 $M)

Backlog	Replacement	Rehabilitation	Capital Maint.	Total
$6,647	$2,162	$802	$273	$9,884
67%	22%	8%	3%	100%

Source: RTA Capital Asset Condition Update 2013 Report

Deferred maintenance creates a physical asset debt that compounds over time and does not evaporate with a new budget year, unlike shortfalls in the operating budget. With only $2.4 billion in federal formula funding and state bond money—Metra's major source of capital funds—expected over the next decade, the total value of unfunded capital needs is expected to soar.

According to RTA's 2013 Capital Asset Condition Assessment Update Report, roughly 50 percent of Metra's assets are estimated to be in marginal or worn condition, implying that these assets are near or have already exceeded their expected useful lives. It's important to note that while the assets may be worn or beyond their useful lives, they are not unsafe, but rather require more capital maintenance. For example, upon inspection vehicles may need to be taken out of service and track may have slow zones. Regular routine maintenance generally would take longer. Safety is never compromised, but service is degraded.

According to RTA's 2013 Capital Asset Condition Assessment Update Report, bridges account for most of this backlog, although stations and rolling stock are other categories with significant needs (See Table 2.)

Table 2
Metra 10-Year Capital Needs by Asset Type

Figure 7-11. Metra Backlog and 10-Year Normal Reinvestment Needs (Millions of 2012$)

Mode	Asset Group	SGR Backlog	10-Year Normal Reinvestment Needs				
			Replacements	Rehabs	Capital Maint.	Total	% of Total
Rail	Facilities*	$256	$98	$21	$21	$396	4.0%
	Guideway Elements*	$3,986	$257	$361	$140	$4,744	48.0%
	Stations	$833	$156	$429	$69	$1,488	15.1%
	Systems*	$410	$288	$0	$43	$741	7.5%
	Vehicles	$1,161	$1,002	$352	$0	$2,515	25.4%
	Rail	$6,647	$1,802	$1,162	$273	$9,884	100.0%
Metra Total		$6,647	$1,802	$1,162	$273	$9,884	100.0%
% of Total		67.3%	18.2%	11.8%	2.8%	100.0%	

* Includes Metra provided needs estimates for asset types not included in Metra's inventory tables and investment in Positive Train Control

It is also important to note that Metra is undertaking an extensive asset inventory that will update all assets included within the RTA asset report, which will change the data that serves as the basis for the 2013 and prior year reports. Examples of extended replacement cycles throughout Metra's system are numerous: each year, only three of nine eligible bridges, 50,000 to 80,000 of 110,000 eligible rail ties, and 45 of 105 eligible grade crossings are replaced, with the remainder kept in service beyond their recommended life spans. Since 2008, Metra has only been able to fund rehabilitation of about 23 diesel passenger cars per year and has had no money for replacements, falling short of the 60 cars we need to

rehab or replace each year. Metra also has been forced to rehabilitate its locomotives rather than purchase new ones, and has had to extend the 10-year recommended remanufacturing cycle for locomotives to up to 16 years in some cases. Deferred rehabilitation or replacement of all assets has unfortunately become commonplace.

Given the facts, it's easy to see that Metra's current economic model is not sustainable due to the chronic tension between present-day needs and operations and longer-term capital needs and financial resources. The railroad industry is very capital-intensive, and it requires more capital investment to maintain a State of Good Repair than almost any other industry. Many projects have been deferred due to the lack of capital funds available to implement large-scale or enhancement projects, while at the same time keeping our system running. As a result, Metra has been forced to implement a "Band-Aid" approach of small fixes, such as rehabilitating cars and infrastructure, instead of the complete replacement and major overhauls that are desperately needed. There are projects that have a significant impact on Metra's ability to deliver the level and quality of service desired by our customers that have been deferred due to a lack of capital funding.

This deferred investment was never more apparent than in the early months of 2014 when Metra experienced a number of rolling stock failures, both cars and locomotives. Metra was left struggling to replace and fix older cars that should have been retired years earlier. The situation was further stressed by Metra's low spare-car ratio. Metra customers were faced with shorter trains resulting in overcrowding and uncomfortable situations. The experience of last winter is the most compelling evidence that Metra needs to act now.

To complicate matters, Metra has been saddled with a perpetual unfunded federal mandate–Positive Train Control (PTC), which has been draining our scarce financial resources and will significantly increase Metra's operating costs for years to come. Safety has always been Metra's top priority, and as a result we have established a schedule to implement this important safety technology consistent with the federal mandate. However, it is anticipated that annual operating costs could increase as much as $15 million to $20 million due to implementation of PTC. In addition, cars and locomotives need to be taken out of service to install the technical equipment for PTC, further depleting the number of cars available for service. While we have been fortunate to receive some State of Illinois Bond funds and RTA State of Good Repair Bond funding for PTC, we are still hundreds of millions of dollars short of fully funding this program.

PTC & ROLLING STOCK CAPITAL NEEDS

In order for Metra to provide the reliable, on-time service that our customers desire and be federally compliant, we must begin an aggressive program to renew and modernize our rolling stock (both cars and locomotives) and fully fund and implement PTC. The pages that follow outline a program to implement PTC and retire worn cars, replacing them with a newer fleet, and at the same time increase the number of cars in the fleet, giving us more flexibility in our daily operations. **The cost of the proposed PTC and rolling stock program is estimated at over $2.4 billion over the next ten years.**

The implementation of this program will require funding above and beyond Metra's current funding levels. It will require a combination of funding and financing strategies from bonding (state, RTA, and/or Metra) to applying for grant programs (federal, state, and/or RTA) to exploring alternative financing mechanisms to possible fare increases.

Table 3 provides an example of a multi-source financing plan for this program over a 10-year period. Metra is proposing to issue its own bonds–which would be the first in its history–or employ similar

financing in an effort to meet its pressing capital needs. Specifically, the plan includes Metra financing $400 million to be used exclusively for the PTC and Rolling Stock plan. Under this scenario, during the first five years, Metra would finance $100 million in each of years 2015, 2017, and 2019 and an additional $100 million in 2022. This financing will require corresponding fare increases or other sources of funds to pay for the financing. It is important to point out that while the cost of financing will be borne by riders through fare increases, the riders will directly be paying for only $400 million of a $2.4 billion modernization program, or a little over 16 percent of the total cost.

Additional funds to pay for the program are based on the following: The program assumes the State of Illinois will fully fund the existing Illinois State Bond Programs–Jump Start and Jobs Now ($102 million for PTC; $120.7 million for locomotives). Likewise, Metra would continue to invest Federal Formula Capital Funds towards these programs ($287 million in the first 5 years; $457 million in all 10 years). However, even with all of these efforts, Metra will need an additional $198.5 million to fund the first five years of the program and an additional $1.1 billion in the second five years, for a total of $1.3 billion.

It is essential to point out that funding this $2.4 billion plan to meet Metra's pressing needs will thus require substantial additional resources from sources outside those which Metra can muster on its own.

The total of $1.3 billion in additional funding, as shown in Table 3, must be provided by the State of Illinois, previously unavailable federal funding, or a combination of both. Metra believes that by taking the lead in funding its capital needs by its willingness to begin a financing program, the cost of which will fall largely on the backs of Metra's riders, Metra will convincingly demonstrate the need for additional governmental support from these other sources.

Table 3
Proposed 10-year Multi-Source Financing Plan

Sample 10-year Financing Plan in $ millions	Year 2015	2016	2017	2018	2019	Total Years 1-5	2020-2024	Grand Total
Metra Revenue Bond Proceeds (2015,17,19, 22)	33.4	60.2	25.7	80.7	100.0	300.0	100.0	400.0
Illinois State Bond Jump Start	60.0	-	-	-	16.8	76.8	103.9	180.7
2015 RTA state of Good Repair Bonds	30.0	-	-	-	-	30.0	-	30.0
Illinois State Bonds - Jobs Now	42.0	-	-	-	-	42.0	-	42.0
Federal Formula Funds (Core Program)	80.0	80.0	59.0	34.0	34.0	287.0	170.0	457.0
Additional Funding Needed	-	-	-	117.3	81.2	198.5	1,115.4	1,313.9
Total Funding Needed	245.4	140.2	84.7	232.0	232.0	934.3	1,489.3	2,423.6

NOTE: Plan is at constant dollars and does not account for inflation.

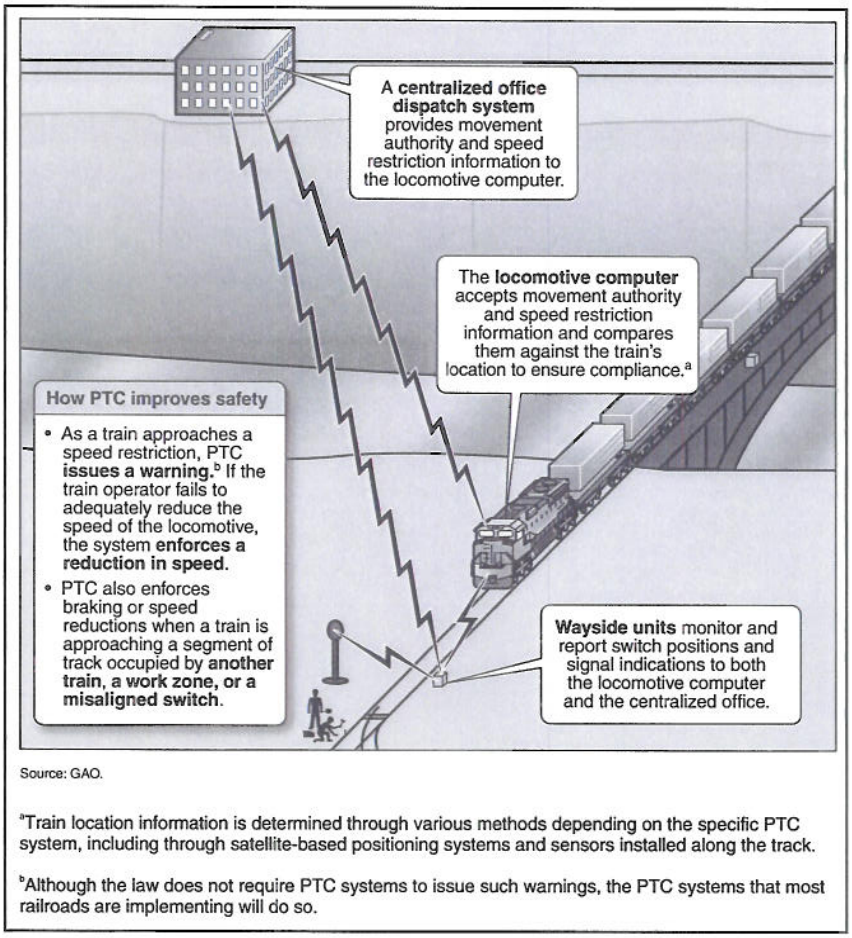
While this program is geared toward the immediate needs of PTC and rolling stock, it does not fully address Metra's capital needs. Future programs (or chapters) will be developed to address the other asset categories such as track, structures, signals, electrical, communications, facilities, stations, parking, etc.

POSITIVE TRAIN CONTROL

Positive Train Control (PTC) is a global positioning system (GPS)-based operational safety system that integrates new technology with existing train control and operating systems to enhance operations and provide an added level of safety. PTC uses GPS technology to automatically ensure the train crew's compliance with operating instructions and speed limits on the railroad. PTC also includes a screen-based display to provide the train crew with additional operating information. Wayside devices report information about rail conditions, switch alignment and signal aspects in real time. The system will help prevent track authority violations, speed limit violations and unauthorized entry into work zones, and

will have the ability to automatically slow or stop trains before an accident occurs. The diagram in Figure 1 shows how PTC works.

Figure 1
Positive Train Control Operation



Source: GAO.

[a]Train location information is determined through various methods depending on the specific PTC system, including through satellite-based positioning systems and sensors installed along the track.

[b]Although the law does not require PTC systems to issue such warnings, the PTC systems that most railroads are implementing will do so.

The Rail Safety Improvement Act of 2008 requires implementation of PTC on all passenger rail routes and on lines carrying hazardous materials by December 31, 2015. In 2010, each railroad affected by the mandate was required to submit a PTC implementation plan to the Federal Railroad Administration, and Metra's plan has been approved. Metra will utilize the Interoperable Electronic Train Management System (I-ETMS) PTC architecture. I-ETMS is one of the two major PTC architectures that will be deployed by American railroads, and the system that will be utilized by the six Class I freight railroads operating in the Chicago region.

One of the biggest challenges to allowing trains to move seamlessly between tracks controlled by different railroads and systems is ensuring that the PTC systems adopted are able to communicate with each other. There are currently no PTC systems in operation in the United States, although Los Angeles is getting closest to full implementation.

The PTC system requires extensive installation of equipment across the Metra system to allow communication between dispatch centers, the wayside signal systems and all rolling stock. Existing communications infrastructure, such as towers and antenna structures, will be utilized to the extent possible. PTC-equipped computers will need to be installed on a large portion of Metra's fleet, including

146 diesel locomotives, nine switch engines, 187 cab cars, and 26 Electric Multiple Units (Highliner cars). From 2013 to 2016, Metra is taking delivery of 160 new Highliners, which will arrive with provisions for PTC onboard equipment. Metra has begun preliminary installations of PTC equipment on several of its lines, including the Metra Electric District, Milwaukee District North Line, Rock Island District, and SouthWest Service.

Metra anticipates numerous benefits associated with PTC. First and foremost is safety. PTC has the ability to automatically enforce track orders should an engineer fail to respond. Any system that can reduce human error and prevent tragedies such as those in Los Angeles and New York are welcome additions to the Metra system. Additionally, PTC will allow enhanced communication between the passenger and freight service as trains make their way through the busy Chicago railroad infrastructure. Knowing the precise locations of all trains operating on the Chicago area's railroad infrastructure also has the potential to increase existing rail capacity through a reduction in the space between trains

While there are many benefits to PTC, it is important to note that the implementation of PTC will significantly increase Metra's operating costs for years to come. Likewise, PTC will pose a number of operating challenges. Should PTC fail while a train is operating, the train will be required to operate at reduced speed within the absolute blocks. PTC failures at the point of origin would require that the equipment be repaired prior to train movement. Failures of the wayside communication equipment would require a train to be falsely enforced.

POSITIVE TRAIN CONTROL COSTS

Although the purchase and installation of PTC equipment comes at a high cost, no source of funding has been provided by the federal government, making it a perpetual unfunded federal mandate. Metra's commuter rail peer agencies estimate that PTC will cost anywhere from $300 million to $500 million to implement. Given that Chicago is one of the most complex operating environments in the country, it is reasonable to anticipate that Metra's cost will be higher than those of our peer agencies. **The total cost to implement PTC on Metra-controlled lines is anticipated to be over $400 million.**

To date, Metra has committed $133 million in capital funding (Federal Formula, State Bond and RTA bond) towards PTC. We are also actively seeking federal funds for this mandate, including applying to the TIGER grant program (TIGER funding request $42 million: $21 million TIGER, $21 million Metra/local match) and have been working with the State of Illinois to release the remaining State Capital Bond Program funds ($102 million: $42 million Jobs Now, $60 million Jump Start) to help fund this important project.

Table 4 provides an example of a multi-source financing plan for PTC over a five-year period. The proposed funding scenario assumes the State of Illinois would fully fund the existing Jump Start and Jobs Now Bond Programs ($102 million). Of the new $400 million Metra financing program, Metra would utilize $47 million to $68 million in 2015 (depending upon the TIGER application award) for PTC. Metra would invest $75 million in Federal Formula Capital Funds and allocate $30 million of the proposed $45 million Metra would receive from the RTA in State of Good Repair Bonds. Assuming Metra receives all $102 million in State of Illinois Bond funding, the proposed PTC program would be funded at $408 million ($133 million current funding; $275 million from this program over next five years). If the State of Illinois Bond funds are not received in a timely manner, Metra will be forced to push other needed system improvements into later years of the capital program in order to fund the implementation of PTC.

Table 4

Proposed PTC Financing Plan

Sample 10-year Financing Plan in $ millions	Year 2015	2016	2017	2018	2019	Total Years 1-5	2020-2024	Grand Total
2015 Metra Revenue Bonds	21.0	47.0	-	-	-	68.0	-	68.0
Illinois State Bond Jump Start	60.0	-	-	-	-	60.0	-	60.0
2015 RTA state of Good Repair Bonds	30.0	-	-	-	-	30.0	-	30.0
Illinois State Bonds - Jobs Now	42.0	-	-	-	-	42.0	-	42.0
Core Capital Program (Federal Formula) - PTC	25.0	25.0	25.0	-	-	75.0	-	75.0
Additional Funding Needed	-	-	-	-	-	-	-	-
Total Funding - PTC	178.0	72.0	25.0	-	-	275.0	-	275.0

NOTE: Plan is at constant dollars and does not account for inflation.

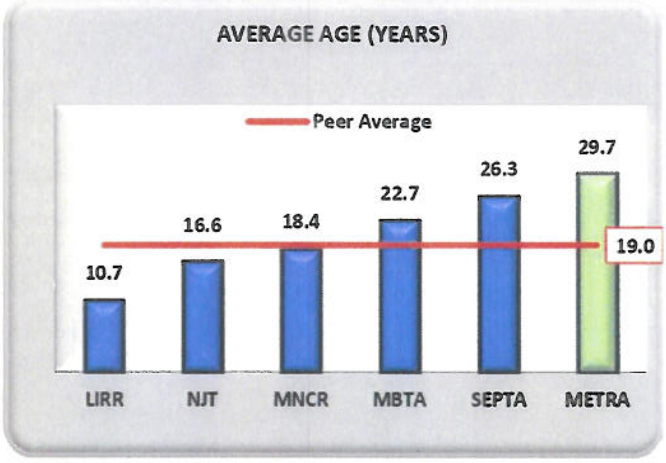
ROLLING STOCK – REHABILIATION AND REPLACEMENT

Rolling stock is a term that covers all vehicles that move on a railroad, such as locomotives and rail cars. There are 146 locomotives and 837 diesel coach cars in the Metra system. When the current replacement program for Metra Electric Highliners is complete next year, there will be 186 Highliners. Rolling stock is the workhorse of the railroad and is one aspect of the Metra system with which our riders are most intimately familiar. Rehabilitation and replacement programs allow for our rolling stock to be modernized with better seating, lighting, climate control, bathroom facilities and electrical outlets for customers to charge their electronic items, and are critical in maintaining the service performance standards on which our customer depend. Given the high visibility of our equipment, it is critically important that Metra maintain and invest in the rolling stock in order to provide a comfortable and reliable ride for our customers. At a bare minimum, Metra should be allocating at least $150 million annually towards rehabilitation and replacement of locomotive and rail car rolling stock programs. In fiscal year 2013, Metra allocated $27.7 million and in 2014 Metra allocated $45.5 million. When compared to our peer agencies, Metra has the oldest fleet. According to the RTA Sub-Regional Performance Measure report (Figure 2), the average age of the Metra fleet in 2012 was 29.7 years old, while the peer agencies averaged 19 years old (ranging from 10.7 years to 26.3 years). While our entire fleet averaged 29.7 years in age, the cars that would be replaced under this program average 43 years in age. (The overall fleet is slightly less old now due to recent additions of new Highliner cars on the Metra Electric Line.)

Figure 2

RTA Sub-Regional Performance Measure (2012)

Average Fleet Age Metra vs. Peer Agencies



Rail Cars

For Metra to maintain a State of Good Repair for its rail car fleet, we must replace and rehabilitate our fleet on a consistent basis. For our diesel passenger cars, this means that we must replace and rehabilitate 60 coach cars annually. Rehabilitation costs Metra $700,000 to $800,000 per car; in contrast, a new car costs over $3 million. Given the cost differential coupled with the lack of adequate capital funding, Metra has been forced to rehabilitate its diesel car fleet rather than purchase new equipment. Since 2008, Metra has only been able to fund rehabilitation of about 23 diesel passenger cars per year and has had no money for replacements, falling short of the 60 cars we need to rehab or replace each year. That will improve somewhat starting in 2015, when Metra intends to rehabilitate about 40 cars.

While the rehabilitation of rail cars is cost-effective in the short-term by extending the life of the equipment and improving service for our riders, rail cars can only be rehabilitated a finite number of times before they must be replaced. For several years, Metra did not have a stable funding stream available to purchase rail cars on a regular basis. (After years of requests, in 2009 the State of Illinois passed a bond program to fund a variety of capital infrastructure projects, and with that Metra received $585 million for the purchase of 160 new Highliner cars. These cars were for the complete replacement of the Metra Electric fleet, which was a priority at the time because it had an average age of 31.5 years. The downside to replacing all the cars within a short time window is that we will need to program all of the vehicles for rehabilitation and replacement at the same time in the future.) Unless we develop a program for ongoing rehabs and replacement of our rail cars, this new fleet will hit all the major milestones at the same time and become a substantial drain on our capital program as the cars are ready for mid-life overhauls and eventual replacement.

The proposed rail car program will purchase 367 new diesel cars to replace 318 cars with an average age of 43 years and increase the number of spare cars by 49. This would retire the oldest cars in the fleet. Under the proposed program, 106 new cars will be delivered between 2018 and 2019 and 261 cars will be delivered between 2020 and 2024.

Metra had already planned in 2015 to begin rehabilitating 10 cars annually at the Metra Electric District (Kensington Yard, KYD), in addition to about 30 cars it now plans to rehabilitate annually at the existing 49th Street Yard facility on the Rock Island District. In order to allow for increased throughput in the short-term, Metra will invest approximately $20 million under this modernization proposal in the 49th Street facility, including additional training facilities. If investments are made beginning in 2015, by 2017 Metra could be in the position to rehabilitate up to 60 cars annually between 49th Street and KYD, as well as offer training programs on-site. Increasing the throughput will also require an increase in capital funding allocated each year. At the same time, Metra will begin studying the potential of a consolidated multi-functional modernized yard facility to perform car and locomotive rehabilitation work as well as training. It is anticipated that if a funding plan can be secured for a new facility, which is estimated to cost over $200 million, it could potentially be operational in five to 10 years. In the short-term it is prudent to make the necessary improvements to 49th Street in order to ramp-up the rehab and training programs while the new facility is considered, designed, financed, and constructed.

Under this program, within 10 years, Metra will purchase 367 new cars, increase the number of spare vehicles and rehabilitate 455 cars. Combined with the introduction of new Highliner cars, that will reduce the fleet's average age to 16.8 years old in 2024.

Figure 3
Highliner Replacements


Figure 4
Coach Car Rehabs




Locomotives

As with the rail car fleet, Metra must also replace and rehabilitate our locomotives on a consistent basis. Diesel locomotives must be rehabilitated every 10 years to maintain a State of Good Repair. Remanufacturing locomotives provides a significant cost savings for Metra while extending the life of this equipment by an estimated 25 years. The cost of remanufacturing a locomotive is $2.1 million versus over $6 million for a new locomotive (the estimated cost in five to 10 years is anticipated to grow to $8 million). Like rail cars, remanufacturing is cost-effective in the short term; however, replacement at some point becomes necessary. Given the cost differential coupled with the lack of adequate capital funding, Metra has been forced to rehabilitate its locomotive fleet rather than purchase new equipment. To keep up, Metra must replace or rehabilitate 12 locomotives every year. Over the years, Metra has been forced to extend the 10-year recommended remanufacturing cycle to 12.5 years.

Under the proposed plan, Metra will rehabilitate 27 locomotives over the next four years at its 47th Street Diesel Shop. Metra is currently out for bid for the rehabilitation of 41 locomotives over four years using an outside vendor. The first year of that contract, which covers 11 locomotives, was previously

funded; the remaining 30 locomotives would be covered by the modernization plan. The rehabilitation of another 28 locomotives is also included in the plan, for a total of 85.

As part of the existing Illinois Bond Jump Start Program, $120.7 million was identified for the purchase of new locomotives. We have been working with the State of Illinois to release the remaining State Capital Bond Program funds to fund new locomotives. That State of Illinois bond money plus additional funding from this modernization plan would be used beginning in 2020 to purchase 52 new locomotives with delivery from 2020-2024. If the State of Illinois Jump Start funding has not become available, additional funding will need to be identified if it is desired to purchase new locomotives.

Under this program, within ten years, Metra will purchase 52 new locomotives and rehabilitate 85 locomotives.

Figure 5
Locomotive Rehab

ROLLING STOCK – REHABILIATION AND REPLACEMENT COSTS

The total cost to implement the Rolling Stock component of this program is anticipated to be more than $2.1 billion over a 10-year period; $659 million is needed in years 1-5 and $1.5 billion is needed in years 6-10. $1.2 billion will be used to purchase 367 new cars; $341 million to rehabilitate 455 cars; $416 million to purchase new locomotives, $178.5 million to rehabilitate 85 locomotives, and $20 million is needed for improvements to the 49th Street yard. Additional capital funding will also need to be allocated towards infrastructure improvements at Metra's various yard locations for storage and serving the increased fleet size. These costs have not been quantified or budgeted for at this time.

Table 5 provides an example of a multi-source financing plan for rolling stock over a 10-year period. The proposed funding scenario assumes the State of Illinois will fully fund the existing Jump Start Program ($120.7 million). Metra would use $332 million from its financing in the years 2015, 2017, 2019, and 2022, which would be serviced by a corresponding fare increase or other sources. Metra would invest $224 million in Federal Formula Capital Funds towards cars and $158 million towards locomotives. Even with these efforts, Metra will need an additional $198.5 million to fund the first five years of the rolling

stock component and an additional $1.1 billion in the second five years, for a total of about $1.3 billion. If the $120.7 million in State of Illinois Bond funds are not received in a timely manner, the needs will grow by a corresponding amount.

Table 5
Proposed Rolling Stock Financing Plan

Sample 10-year Financing Plan	Year					Total		Grand
in $ millions	2015	2016	2017	2018	2019	Years 1-5	2020-2024	Total
2015 Metra Revenue Bonds	12.4	13.2	6.4	-	-	32.0	-	32.0
2017 Metra Revenue Bonds	-	-	19.3	80.7	-	100.0	-	100.0
2019/22 Metra Revenue Bonds	-	-	-	-	100.0	100.0	100.0	200.0
Illinois State Bond Jump Start	-	-	-	-	16.8	16.8	103.9	120.7
Core Capital Program (Federal Formula) - Cars	32.0	32.0	20.0	20.0	20.0	124.0	100.0	224.0
Core Capital Program (Federal Formula) - Locos	23.0	23.0	14.0	14.0	14.0	88.0	70.0	158.0
Additional Funding Needed	-	-	-	117.3	81.2	198.5	1,115.4	1,313.9
Total Funding - Rolling Stock	67.4	68.2	59.7	232.0	232.0	659.3	1,489.3	2,148.6

NOTE: Plan is at constant dollars and does not account for inflation.

METRA FARE POLICY & PEER REVIEW

In 2011, Metra's Board of Directors adopted a set of fare principles to serve as a guide in the development of fare policy:

- Consider regular fare adjustments that ensure a balanced budget, keep pace with inflation, and avoid significant, infrequent fare increases;
- No longer divert capital-eligible funds to the operating budget;
- Acknowledge the total cost and the total value of providing services;
- Maintain a fair pricing structure that maximizes revenues;
- Review fare media to improve fare collection and simplify overall collection activities and reconciliation
- Minimize on-train transactions and overall transaction costs;
- Recognize that convenience has a value;
- Equalize fare differentials by zone over time; and
- Evaluate fare policies of sister agencies and peers.

To address the last principle listed above, as part of the annual budget process Metra completes a survey of current fares and fare policies at all large commuter rail systems in the United States. The objective is to inventory the present state of commuter rail pricing practices, which could inform future changes to fares and fare policies at Metra. System ridership and economic performance data are also presented, along with other fare-system attributes, such as payment methods and reduced-fare programs. The survey includes the six largest commuter railroads in the country, which (in addition to Metra) are: Long Island Railroad, Metro-North Railroad, New Jersey Transit, Southeastern Pennsylvania Transportation Authority, and Massachusetts Bay Transportation Authority.

Fare policy data is collected from peer agency reports, websites and follow-up phone calls with peer agency staffs. To translate peer agency fares to the Metra fare zone system as accurately as possible, stations for other agencies were assigned to Metra's 5-mile fare zones based on rail route distance from each respective center city terminal station. Monthly and one-way fares falling within each equivalent Metra fare zone were then averaged for each agency.

Metra raised its fares more times in the last four years than its peers. Since May 2010, Metra has raised fares three times.

- In 2010, Metra raised fares approximately 6 percent and the cost of one-way tickets was rounded up to the nearest quarter; previously it was rounded to the nearest nickel. The on-train cash penalty increased from $2.00 to $3.00. The weekend pass increased from $5.00 to $7.00.
- In 2012, Metra raised fares on average 25 percent and the discount for ten-ride tickets was reduced from 20 percent of the cost of equivalent one-ways to 10 percent. Also in 2012, Metra ended subsidies for the Link-Up passes.
- In 2013, the cost of a ten-ride ticket was increased to match the equivalent cost of 10 one-way tickets, effectively ending the ten-ride ticket discount.

Even though Metra has increased fares more times than its peers in recent history, Metra's average fare has always been lower than its peers' average. This difference has grown over the last 25 years as its peers have raised fares by much greater amounts. Even when the higher cost of living on the East Coast is considered (Chicago is roughly 90 percent as expensive), Metra fares are much lower. In addition, Metra fares have also not kept pace with inflation. Figure 6 shows the growth in the most common Metra one-way fare since 1983, as well as the growth in the consumer price index and the growth of the average of the corresponding fares for Metra's peer railroads.

FIGURE 6
Metra One-Way Fares vs. CPI and Peers

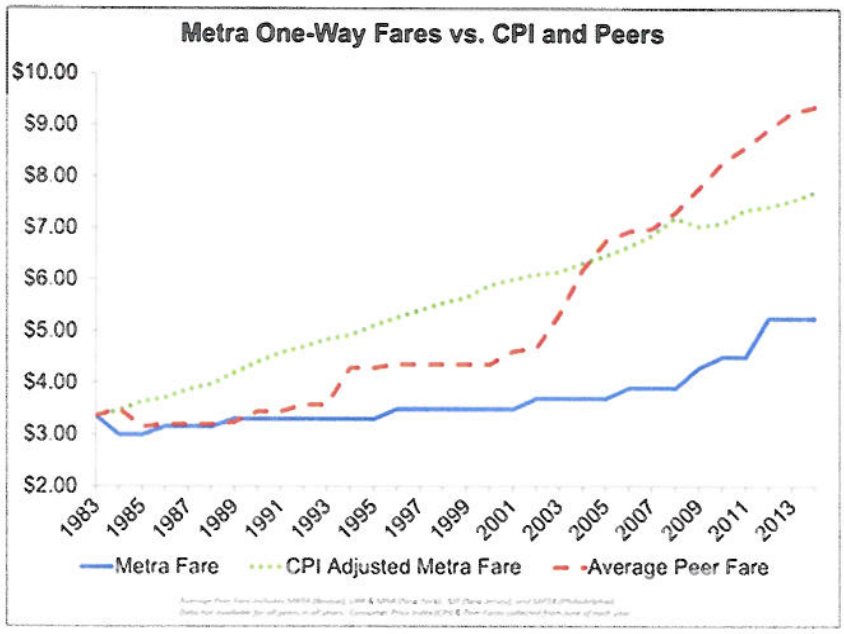


Table 6 shows a comparison of Metra monthly fares in 1990, 2010, and 2014 to those of its large peers, averaged together, for four selected zone pairs. Compared to commuter rail in the other regions, Chicagoland riders have always had lower average fares. In 1990, Metra fares by zone were lower than the average of our peer agencies. Since 1990 the difference between what riders pay in this region compared to the other areas has grown considerably. A monthly fare for a Zone AE rider in 1990 cost about $90, while the peer average for the same distance of travel was about $20 more. Fast forward to 2014: today Metra's Zone AE rider pays $150, while the peer average is $243, or $90 more. In the last 25 years, Metra's average monthly fares increased 60 percent, while as a group Metra's peers' average fare increase was 124 percent.

TABLE 6
Metra vs. Peer Monthly Fares Over Time

Monthly Ticket Fares by Selected Zone: 1990, 2010, & 2014

Metra	Distance	in Effect 1990*			in Effect 2010*			in Effect 2014*		
Zone Pair	(miles)	***Metra***	Avg.†	% Diff	**Metra**	Avg.†	% Diff	***Metra***	Avg.†	% Diff
AB	5.1 - 10.0	***$47***	$69	46%	**$63**	$141	122%	***$86***	$166	94%
AE	20.1 - 25.0	***$89***	$106	19%	**$116**	$216	86%	***$150***	$243	63%
AH	35.1 - 40.0	***$120***	$140	17%	**$153**	$280	84%	***$192***	$316	65%
AK	50.1 - 55.0	***$151***	$167	10%	**$190**	$352	85%	***$235***	$380	62%

**1990 fares effective as of 1/1/1990; 2008 fares effective as of 1/1/2008; 2013 fares effective as of 7/1/2013.*
†Average of Large Agencies, not including Metra.

Figures 7 and 8 compare Metra fares by equivalent Metra fare zone from both 1990 and 2014, with those of the other five peer agencies averaged together, showing monthly and one-way fares, respectively. These figures show that Metra monthly and one-way fares in 1990 were slightly lower than

those of its peers, averaged together, but in 2014 they are significantly lower than those of its peers, averaged together, despite an overall 25 percent fare increase enacted by Metra in February 2012.

FIGURE 7
Metra vs. Peers Monthly Fares 1990 & 2014

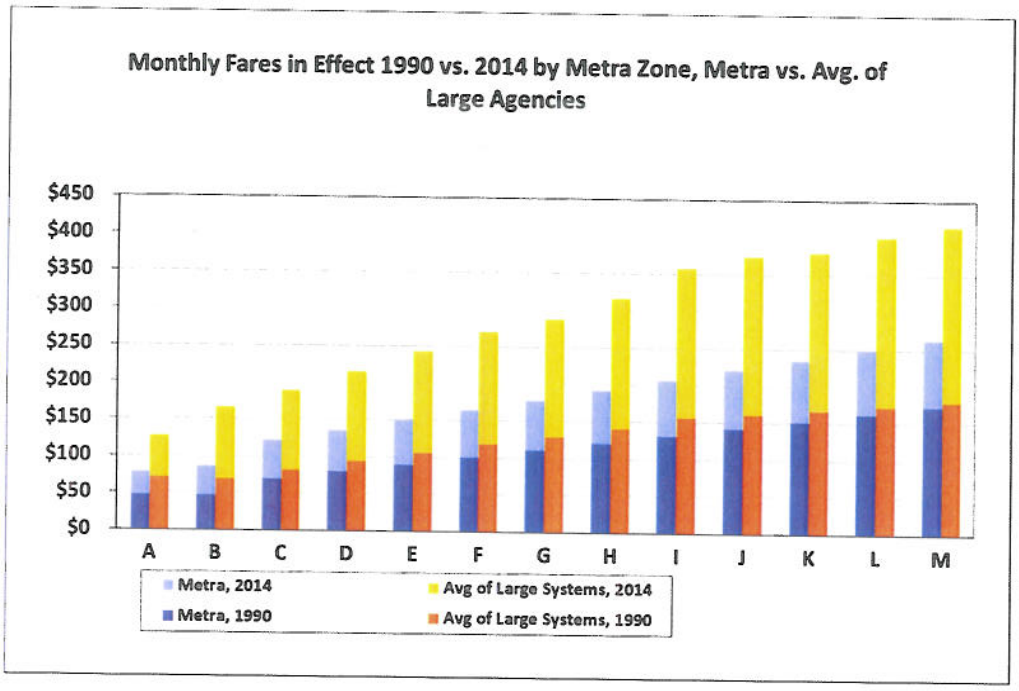


FIGURE 8
Metra vs. Peers Peak One-Way Fares 1990 & 2014

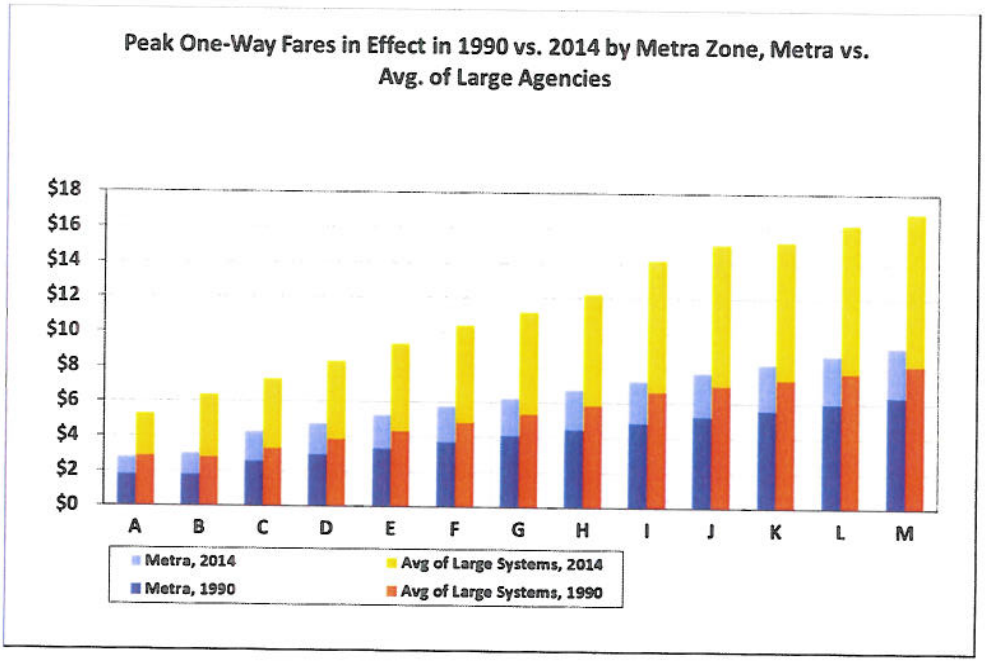


Table 7 compares Metra's monthly fares with the average monthly fare for all other large systems by Metra-equivalent fare-zone pair. Average equivalent monthly fares for Metra's five large system peers, combined, are between 57 percent and 94 percent higher than Metra's. Table 8 presents Metra's one-way fares in relation to average peak one-way fares by equivalent fare-zone pair for all other large systems. Average equivalent peak one-way fares for all of Metra's large system peers, combined, are between 72 percent and 114 percent higher than Metra's.

TABLE 7
Comparative Monthly Ticket Fares By Metra Zone 2014

Comparative Monthly Ticket Fares by Metra Zone - 2014

Metra Zone Pair	Distance (miles)	*Metra*	Peer System Average**	% Difference from Metra
AA	0.0 - 5.0	***$78***	$127	63%
AB	5.1 - 10.0	***$86***	$166	94%
AC	10.1 - 15.0	***$121***	$189	57%
AD	15.1 - 20.0	***$135***	$215	59%
AE	20.1 - 25.0	***$150***	$243	63%
AF	25.1 - 30.0	***$164***	$271	65%
AG	30.1 - 35.0	***$178***	$288	62%
AH	35.1 - 40.0	***$192***	$316	65%
AI	40.1 - 45.0	***$207***	$358	73%
AJ	45.1 - 50.0	***$221***	$375	70%
AK	50.1 - 55.0	***$235***	$380	62%
AL	55.1 - 60.0	***$249***	$402	61%
AM	60.1 - 65.0	***$264***	$416	58%

TABLE 8
Comparative Peak One-Way Fares By Metra Zone 2014

Comparative Peak One-Way Ticket Fares by Metra Zone - 2014

Metra Zone Pair	Distance (miles)	*Metra*	Peer System Average**	% Difference from Metra
AA	0.0 - 5.0	***$2.75***	$5.27	92%
AB	5.1 - 10.0	***$3.00***	$6.41	114%
AC	10.1 - 15.0	***$4.25***	$7.31	72%
AD	15.1 - 20.0	***$4.75***	$8.33	75%
AE	20.1 - 25.0	***$5.25***	$9.36	78%
AF	25.1 - 30.0	***$5.75***	$10.43	81%
AG	30.1 - 35.0	***$6.25***	$11.22	80%
AH	35.1 - 40.0	***$6.75***	$12.22	81%
AI	40.1 - 45.0	***$7.25***	$14.23	96%
AJ	45.1 - 50.0	***$7.75***	$15.13	95%
AK	50.1 - 55.0	***$8.25***	$15.29	85%
AL	55.1 - 60.0	***$8.75***	$16.24	86%
AM	60.1 - 65.0	***$9.25***	$16.94	83%

PROPOSED PROGRAM'S IMPACT ON PASSENGER FARES

The multi-source financing plans presented also include assumptions for the operating budget over time. The financing plan assumes annual PTC operating costs, initially higher maintenance costs over normal inflation due to the aging fleet and infrastructure requiring more materials and labor, providing $10 million each year for Metra farebox capital, and 3 percent per year inflation. The plan also assumes that during the 10-year period, Metra would issue four $100 million bonds or similar financing, which will require funds to repay the debt. The funding sources could include federal, state or RTA funds or, in the event that alternative funding cannot be secured, fare increases would be necessary.

To implement the financing plan, which relies on $400 million in bonds or similar financing, and to adhere to the policy adopted by the Metra Board in 2011 of reviewing fares annually to account for increased operating costs, Table 9 shows a proposed fare increase plan for the next 10 years. Under Metra's annual program and budget, it is anticipated that the Metra Board will, at present, consider only the level of fare increase needed for 2015.

Table 9
Proposed 10-Year Fare Increase Plan

Year	Proposed Increase
2015	10.80%*
2016	5.00%
2017	8.50%*
2018	4.00%
2019	7.75%*
2020	3.00%
2021	3.00%
2022	5.75%*
2023	3.00%
2024	3.00%

* Year of Metra financing

However, in order to demonstrate the actual cost of Metra's beginning to overcome years of deferred maintenance and a failure to confront the reality of responsibly funding Metra's operations and capital needs, the tables below constitute an effort to fully disclose to the riding public and other stakeholders the costs of meeting Metra's needs for PTC & Rolling Stock. It should be emphasized that, as the 10-year plan unfolds, if alternative sources can be found to either provide for the debt service for the to-be-issued bonds or other financing or to eliminate the need for all of the financing, some of the proposed fare increases may be able to be eliminated.

As an example, Tables 10 and 11 show the potential fare increase necessary to pay for all $400 million of financing through fare increases. Table 10 provides an example of how the multi-source financing plan impacts the one-way fares over the 10-year period. In 2014, the Metra Zone AE riders pay $5.25 for a one-way ticket. Under this program, over the course of the next five years the cost would increase to $7.50 in 2019 and $9 by 2024. Table 11 provides the likely increase to the monthly tickets over the ten-

year period. In 2014, the Metra Zone AE rider pays $149.50 for a monthly ticket. Under this program, over the course of the next five years the cost would increase to $214 in 2019 and $257 by 2024.

Table 10
Sample of One-way fares over 10 years ($400 million financing serviced by fares)

Metra Zone Pair	Distance (miles)	*2014*	2015*	2016	2017*	2018	2019*	2020	2021	2022*	2023	2024
AA	0.0 - 5.0	***$2.75***	$3.25	$3.50	$3.75	$4.00	$4.25	$4.50	$4.75	$5.00	$5.25	$5.50
AB	5.1 - 10.0	***$3.00***	$3.50	$3.75	$4.00	$4.25	$4.50	$4.75	$5.00	$5.25	$5.50	$5.75
AC	10.1 - 15.0	***$4.25***	$4.75	$5.00	$5.50	$5.75	$6.25	$6.50	$6.75	$7.25	$7.50	$7.75
AD	15.1 - 20.0	***$4.75***	$5.50	$5.75	$6.25	$6.50	$7.00	$7.25	$7.50	$8.00	$8.25	$8.50
AE	20.1 - 25.0	***$5.25***	$6.00	$6.25	$6.75	$7.00	$7.50	$7.75	$8.00	$8.50	$8.75	$9.00
AF	25.1 - 30.0	***$5.75***	$6.50	$6.75	$7.25	$7.50	$8.00	$8.25	$8.50	$9.00	$9.25	$9.50
AG	30.1 - 35.0	***$6.25***	$7.00	$7.25	$7.75	$8.00	$8.50	$8.75	$9.00	$9.50	$9.75	$10.00
AH	35.1 - 40.0	***$6.75***	$7.50	$8.00	$8.75	$9.00	$9.75	$10.00	$10.25	$10.75	$11.00	$11.25
AI	40.1 - 45.0	***$7.25***	$8.25	$8.75	$9.50	$10.00	$10.75	$11.00	$11.25	$12.00	$12.25	$12.50
AJ	45.1 - 50.0	***$7.75***	$8.75	$9.25	$10.00	$10.50	$11.25	$11.50	$11.75	$12.50	$13.00	$13.50
AK	50.1 - 55.0	***$8.25***	$9.25	$9.75	$10.50	$11.00	$11.75	$12.00	$12.25	$13.00	$13.50	$14.00
AL	55.1 - 60.0	***$8.75***	$9.75	$10.25	$11.00	$11.50	$12.50	$13.00	$13.50	$14.25	$14.75	$15.25
AM	60.1 - 65.0	***$9.25***	$10.25	$10.75	$11.75	$12.25	$13.25	$13.75	$14.25	$15.00	$15.50	$16.00
		% increase	10.80%	5.00%	8.50%	4.00%	7.75%	3.00%	3.00%	5.75%	3.00%	3.00%

* Year of Metra financing

Table 11
Sample of Monthly fares over 10 years ($400 million financing serviced by fares)

Metra Zone Pair	Distance (miles)	*2014*	2015*	2016	2017*	2018	2019*	2020	2021	2022*	2023	2024
AA	0.0 - 5.0	***$78***	$93	$100	$107	$114	$121	$128	$135	$143	$150	$157
AB	5.1 - 10.0	***$86***	$100	$107	$114	$121	$128	$135	$143	$150	$157	$164
AC	10.1 - 15.0	***$121***	$136	$143	$157	$164	$178	$185	$192	$207	$214	$221
AD	15.1 - 20.0	***$135***	$157	$164	$178	$185	$200	$207	$214	$228	$235	$242
AE	20.1 - 25.0	***$150***	$171	$178	$192	$200	$214	$221	$228	$242	$249	$257
AF	25.1 - 30.0	***$164***	$185	$192	$207	$214	$228	$235	$242	$257	$264	$271
AG	30.1 - 35.0	***$178***	$200	$207	$221	$228	$242	$249	$257	$271	$278	$285
AH	35.1 - 40.0	***$192***	$214	$228	$249	$257	$278	$285	$292	$306	$314	$321
AI	40.1 - 45.0	***$207***	$235	$249	$271	$285	$306	$314	$321	$342	$349	$356
AJ	45.1 - 50.0	***$221***	$250	$264	$285	$299	$321	$328	$335	$356	$371	$385
AK	50.1 - 55.0	***$235***	$264	$278	$299	$314	$335	$342	$349	$371	$385	$399
AL	55.1 - 60.0	***$249***	$278	$292	$314	$328	$356	$371	$385	$406	$420	$435
AM	60.1 - 65.0	***$264***	$292	$306	$335	$349	$378	$392	$406	$428	$442	$456
		% increase	10.80%	5.00%	8.50%	4.00%	7.75%	3.00%	3.00%	5.75%	3.00%	3.00%

* Year of Metra financing