

**SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT**  
300 Lakeside Drive, P. O. Box 12688, Oakland, CA 94604-2688

**NOTICE OF MEETING AND AGENDA**  
**BOND OVERSIGHT COMMITTEE**

Friday, June 18, 2021  
9:30 a.m. – 12:00 p.m.

COMMITTEE MEMBERS: Marian Breitbart, Leah Edwards, Daren Gee, Michael McGill, Catherine Newman, Sonja Stewart

**Please note, pursuant to Governor Newsom’s Executive Order N-29-20 and the California Shelter-in-Place mandate, which prevents all but essential travel, public participation for this meeting will be via teleconference only.**

Presentation materials will be available at: [www.bart.gov/about/bod/advisory/bond](http://www.bart.gov/about/bod/advisory/bond)

You may join the Bond Oversight Committee (BOC) Meeting via Zoom by calling 1 (669) 900-6833 and entering **meeting ID** 790 512 1598.

**If you wish to make a public comment:**

- 1) Submit written comments via email to [mmorale@bart.gov](mailto:mmorale@bart.gov), using “public comment” as the subject line. Your comment will be read into the record and will become a permanent part of the file. Please submit your comments as far in advance as possible. Emailed comments must be received before 9:00 a.m. in order to be included in the record.
- 2) Call 1 (699) 900-6833, enter **meeting ID** 790 512 1598 dial \*9 to raise your hand when you wish to speak.

**Public comment is limited to three (3) minutes per person.**

**AGENDA**

1. Call to Order (5 minutes)
  - A. Roll Call
  - B. Introduction of BART Staff
2. Meeting Minutes: March 19, 2021 (For Discussion/Action) (5 minutes)
3. Update on Committee Seat Vacancies (For Discussion/Action) (5 minutes)
4. Update on Reappointment of Members to BOC 2021-2023 Term (For Discussion) (5 minutes)
5. Annual Report Subcommittee –2021 Annual Report (For Discussion)
  - A. Review Draft Annual Report (For Discussion) (30) minutes)
6. BART Safety, Reliability and Traffic Relief Program (Measure RR) Presentation (For Discussion)

- A. Office of Civil Rights (5 minutes)
    - 1. Q&A (10 minutes)
  - B. Human Resources/Staffing (5 minutes)
    - 1. Q&A (10 minutes)
  - C. Station Modernization Project – Accelerated Projects (10 minutes)
    - 1. Q&A (10 minutes)
  - D. Program Updates (12 minutes)
    - 1. Q&A (10 minutes)
- 7. Requests for Future Agenda Items (For Discussion) (5 minutes)
  - 8. Committee Member Announcements (For Discussion) (5 minutes)
  - 9. Public Comment (5 minutes)
  - 10. Adjournment (5 minutes)

BART provides service/accommodations upon request to persons with disabilities and individuals who are limited English proficient who wish to address Committee matters. A request must be made within one and five days in advance of Board/Committee meetings, depending on the service requested. Please contact the Office of the District Secretary at (510) 464-6083 for information.



**San Francisco Bay Area Rapid Transit District**

**Measure RR Program**

**BART Bond Oversight Committee**

**Friday, March 19, 2021**

**9:30 AM – 12:00 PM**

**Via Zoom Conference Call**

**\*\*\*\*\*Draft Minutes\*\*\*\*\***

<b>MEETING NUMBER</b>	<b>MEETING DATE</b>	<b>MEETING TIME</b>
Term 2, Meeting 6	Friday, March 19, 2020	9:30 am – 12:00 pm
<b>Attendees</b>	<b>Present Members</b> Michael McGill, Chair Catherine Newman, Vice Chair Marian Breitbart Daren Gee Leah Edwards Sonja Stewart	<b>Staff</b> Rose Poblete Carl Holmes Tamar Allen Shane Edwards Linton Johnson Chris Filippi Veronica Thomas Tracy Johnson Chris Gan Josh Reed Travis Engstrom Maceo Wiggins Chris Filippi Sylvia Lamb Carl Holmes Myat San Antoinette Conteh Michaela Morales Jamal Thompson Joseph Townner Audrey Tan Vicki Tan Julian Chacon

<b>Agenda Item</b>	<b>Meeting Notes</b>
1. Call to Order A. Roll Call B. Introduction of BART Staff	All committee members in attendance.
2. Meeting Minutes: December 18, 2020	M. Breitbart makes the motion. L. Edwards seconds the motion. Unanimous approval.

<p>3. Member Reappointment to Committee 2021-2023 Term</p>	<p>Everyone says they wish to be re-appointed.</p>
<p>4. Update on Filling American Institute of Certified Public Accountants Vacancy</p>	<p>L. Johnson updates the committee on the search to replace former committee member.</p>
<p>5. Annual Report Subcommittee-2021 Annual Report</p> <p>A. Appointment of Annual Report Subcommittee (two seats)</p> <p>B. Review Draft Annual Report</p>	<p>M. Breitbart moves to appoint D. Gee and S. Stewart to the subcommittee for the balance of this year. L. Edwards seconds the motion. Unanimous vote.</p> <p>Chris Filippi discusses how the report will be formatted and drafted for 2021.</p> <p>L. Edwards says she believes the report looks very good. She likes the appendix with the more detailed financial information. She says, overall, the report does a good job explaining Measure RR work, however, she wants to see the cost effectiveness section of the projects explained more clearly.</p> <p>D. Gee says the report is a bit lengthy, but for someone seeking a lot of information, it's fine.</p> <p>Vice Chair Newman wants to see how to address D. Gee's issue of the length of the report. She wants to look at how to "chunk it" to make it more easily digestible for the reader.</p>
<p>6. BART Safety, Reliability &amp; Traffic Relief Program (Measure RR) Update</p>	<p>Various staff members present the update.</p> <p>In the Office of Civil Rights (OCR) section:</p> <ul style="list-style-type: none"> <li>• Chair McGill is happy to hear that OCR's virtual townhalls are being well attended. McGill recommends that when BART returns to in-person events, staff considers a hybrid structure so some people can attend virtually.</li> </ul> <p>In the Human Resources section:</p> <ul style="list-style-type: none"> <li>• D. Gee wants to know more about load shedding in the next HR report and what worked and what didn't.</li> <li>• Vice Chair Newman wants some insight into what type of positions there are in RR.</li> </ul> <p>In the main part of the presentation</p>

	<ul style="list-style-type: none"> <li>• L. Edwards wants to understand how the bidding process works. C. Lamb says staff can give an update at a future meeting.</li> <li>• D. Gee says he wants to know how big the punch list is for closing out work. He wants the committee to consider focusing on it. S. Lamb says that in future presentations when staff highlights a project, staff can include examples of what is on the punch list.</li> <li>• M. Breitbart would like to put a footnote of the earned value (CPI) for each project page. S. Lamb says she will do a presentation on earned value at a later meeting.</li> </ul>
7. Request for Future Agenda Items	M. Breitbart would like to see an item about the financing plan.
8. Committee Member Announcements	<p>Vice Chair Newman was very excited to see Measure RR projects included in BARTable. She says she liked seeing Measure RR work highlighted in BARTable and wants to see it continued.</p> <p>Committee members give their well wishes for a happy retirement to Tracy Johnson and Rose Poblete.</p> <ul style="list-style-type: none"> <li>• Vice Chair Newman says, “Thank you and I wish you the best in all that comes next.”</li> <li>• D. Gee echoes Vice Chair Newman’s comments saying, “Public service is a unique thing, and being part of that and giving back to community is huge!”</li> <li>• L. Edwards adds, “For everyone retiring, it’s been a pleasure working with you.”</li> </ul>
9. Public Comment	There is no public comment.
10. Adjournment	Chair McGill adjourns the meeting.



MEASURE RR BOND  
OVERSIGHT COMMITTEE  
**ANNUAL REPORT**

JUNE 2021



**DRAFT**

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Dear Bay Area residents:

Thank you for taking an interest in the future of BART and learning more about the agency's efforts to rebuild its aging infrastructure through Measure RR, a \$3.5 billion bond measure approved by voters in Alameda, Contra Costa, and San Francisco counties in 2016. This is the fourth annual report on the Measure RR program to be published by the independent Bond Oversight Committee.

The goal of Measure RR is to help bring BART into a state of good repair so it can be a reliable transportation service for the Bay Area. It's the responsibility of the independent Bond Oversight Committee to verify that BART is spending bond revenues as promised. The committee includes members with extensive experience in engineering, finance, and project management.

This past year has posed unique challenges to transit agencies across the world including BART. In addition to our overall review of BART's Measure RR program, the oversight committee has focused on how the COVID-19 pandemic has impacted BART's rebuilding plans. This report addresses multiple areas of interest including how reduced service hours have helped to accelerate the progress of some projects as well as what steps have been taken to ensure the safety of workers during this public health crisis.

An important part of our role as the Bond Oversight Committee is to listen to input from riders and taxpayers. Despite the impacts of the pandemic, our meetings are open to the public via videoconference and are listed on our website at [www.bart.gov/about/bod/advisory/bond](http://www.bart.gov/about/bod/advisory/bond). We will welcome the public to join us in person for our meetings once that's deemed safe by health officials. We will publish annual reports throughout the lifetime of Measure RR.

As the chair of the committee, I encourage you to read this report as well as to join us at one of our public meetings.

Sincerely,



Michael R. McGill

RR Bond Oversight Committee Chairperson

Professional engineer, Institute of Electrical and Electronic Engineers (IEEE) seat

### OTHER COMMITTEE MEMBERS

Full biographies and photographs at [www.bart.gov](http://www.bart.gov)

**MARIAN BREITBART**, Budgeting & Financial Management Seat

**MICHAEL DAY**, Accounting Seat

**DAREN GEE**, Civil Engineering Seat

**CATHERINE NEWMAN**, League of Women Voters Seat

**LEAH E. EDWARDS**, League of Women Voters Seat

**SONJA STEWART**, Project Management Institute Seat

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# EXECUTIVE SUMMARY

This past year presented extraordinary challenges for public transportation agencies across the world. Despite the many difficulties brought on by the COVID-19 pandemic BART has continued to serve as a transportation lifeline for the Bay Area while remaining committed to its Measure RR rebuilding program. To that end, BART has been making the most of reduced service hours to accelerate important infrastructure projects. As BART continues to move forward with its work, the independent Measure RR Bond Oversight Committee also remains committed to its mandate to evaluate the projects funded by Measure RR for cost-effectiveness, meeting quality standards, and being completed in a timely manner.

This fourth Measure RR annual report provides BART riders, BART District residents, and taxpayers a comprehensive overview of the status of Measure RR. It offers a progress report on RR which includes a look at what has been accomplished to date, what comes next, and whether the progress made so far measures up to expectations. This year's report will also look at how BART's rebuilding program has responded to the global pandemic.

Through March 2021, about \$866 million of Measure RR funds have been invested in rebuilding projects. A total of 126 projects across the system are in their planning, design, or construction phases. Another 22 projects have been completed. About 25% of Measure RR work has been completed, which exceeds projections made by BART when Measure RR was put before BART District voters in 2016.

The Measure RR program has achieved several key successes in the last year including:

- Award of the design-build contract for the Train Control Modernization Project.
- Major track replacement projects completed in Orinda, Hayward, and Richmond.
- Completion reached on the Station Modernization Project at El Cerrito del Norte and the Powell Street Ceiling and Lighting Project.

BART has made steady progress on its major program categories since the inception of the Measure RR program. As of the end of March 2021 BART had replaced or completed:

- 34 miles of worn rail.
- 31 track switches (key track components that help trains switch lines).
- 27 miles of 34.5kV electrical cable to ensure trains have a reliable source of power.
- Platform edges at seven stations have been upgraded to improve safety.
- 58 miles of third rail coverboards (the white, curved fiberglass shields that protect the third rail, which powers BART trains) have been enhanced to reduce failures that cause train delays.
- 4 major Station Modernization and Station Access projects.

This report examines the progress made on BART's rebuilding efforts in each of the major program categories including Track, Power Infrastructure, Tunnels and Structures, Mechanical, Station Modernization, Station Access, and Relieve Crowding. The Bond Oversight Committee has determined that the rebuilding projects being prioritized by BART have been delivered in accordance with best practices and are already improving the experience of riders by enhancing the reliability of the BART system. The committee also believes BART is meeting the bond mandate and is on track to deliver on its public commitments.

## Advancing Sustainability

The oversight committee is also responsible for ensuring Measure RR projects are progressing in accordance with the District's sustainability standards. There are multiple examples of RR projects benefiting the environment including:

- New escalators being installed at downtown San Francisco stations are constructed of sustainable materials and utilize an automatic lubrication system that applies lubrication only when and where it is needed. The new units are energy efficient and feature variable frequency regenerative drives which allow for smooth starts and stops and allows for the escalators to slow down and save electricity when no passengers are using them.
- The El Cerrito del Norte Station Modernization Project incorporates sustainable design concepts. Two new bioswale areas with new plants were installed in the station parking lots to hold stormwater runoff and protect local waterways from stormwater pollutants. (Bioswales are channels designed to remove pollution and debris from stormwater runoff.)
- Power cable replacement work enhances BART's ability to meet its long-term renewable and low/zero carbon resource objectives. BART's Wholesale Electricity Policy Portfolio calls for BART to get 100% of its energy from zero carbon sources by 2035 and 100% from eligible renewable sources by 2045.





# ABOUT THE BOND OVERSIGHT COMMITTEE



**Marian Breitbart**  
Association of Budgeting & Financial Management Seat



**Michael Day**  
American Institute of Certified Public Accountants Seat



**Leah Edwards**  
League of Women Voters of the Bay Area Seat



**Daren Gee**  
Civil Engineering Management and Oversight Seat



**Michael R. McGill**  
Chairperson of the Committee  
American Institute of Electrical Engineers Seat



**Sonja Stewart**  
Project Management  
Institute seat



**Catherine Newman**  
Vice Chairperson of the Committee  
League of Women Voters of the Bay Area Seat

Measure RR required BART to establish a Bond Oversight Committee (BOC) to verify that bond revenues are being spent as promised. The independent committee is comprised of seven members who represent a diversity of expertise, geography, and demographic characteristics. Members serve two-year terms and are eligible to serve up to six years total. They are appointed by the BART Board of Directors. Members of the committee represent different areas of expertise.

- The American Society of Civil Engineers, or its successor organization, is represented by one member who has expertise in civil engineering management and oversight.
- The Institute of Electrical and Electronic Engineers, or its successor organization, is represented by one member who has expertise in electrical engineering management and oversight.
- The American Institute of Certified Public Accountants, or its successor organization, is represented by one member who has expertise in audit or financial oversight.
- The Association for Budgeting & Financial Management section of the American Society for Public Administration, or its successor organization, is represented by one member who has expertise in municipal finance.
- The Project Management Institute, or its successor organization, is represented by one member who has expertise in construction project management.
- The League of Women Voters, Bay Area, or its successor organization or chapter is represented by two members.

The Bond Oversight Committee is responsible for providing diligent, independent, and public oversight of the expenditure of funds from bond sales. The BOC assesses how bond proceeds are spent to ensure all spending is authorized by the ballot measure. The committee assesses whether projects funded by bond proceeds are completed in a timely, cost-effective, and high-quality manner consistent with the best interests of BART riders and District residents. The BOC also publishes this annual report.

You can find the full text of the duties and responsibilities of the BOC in Section 11 of the resolution that established the committee. It's available at [www.bart.gov/about/bod/advisory/bond](http://www.bart.gov/about/bod/advisory/bond).

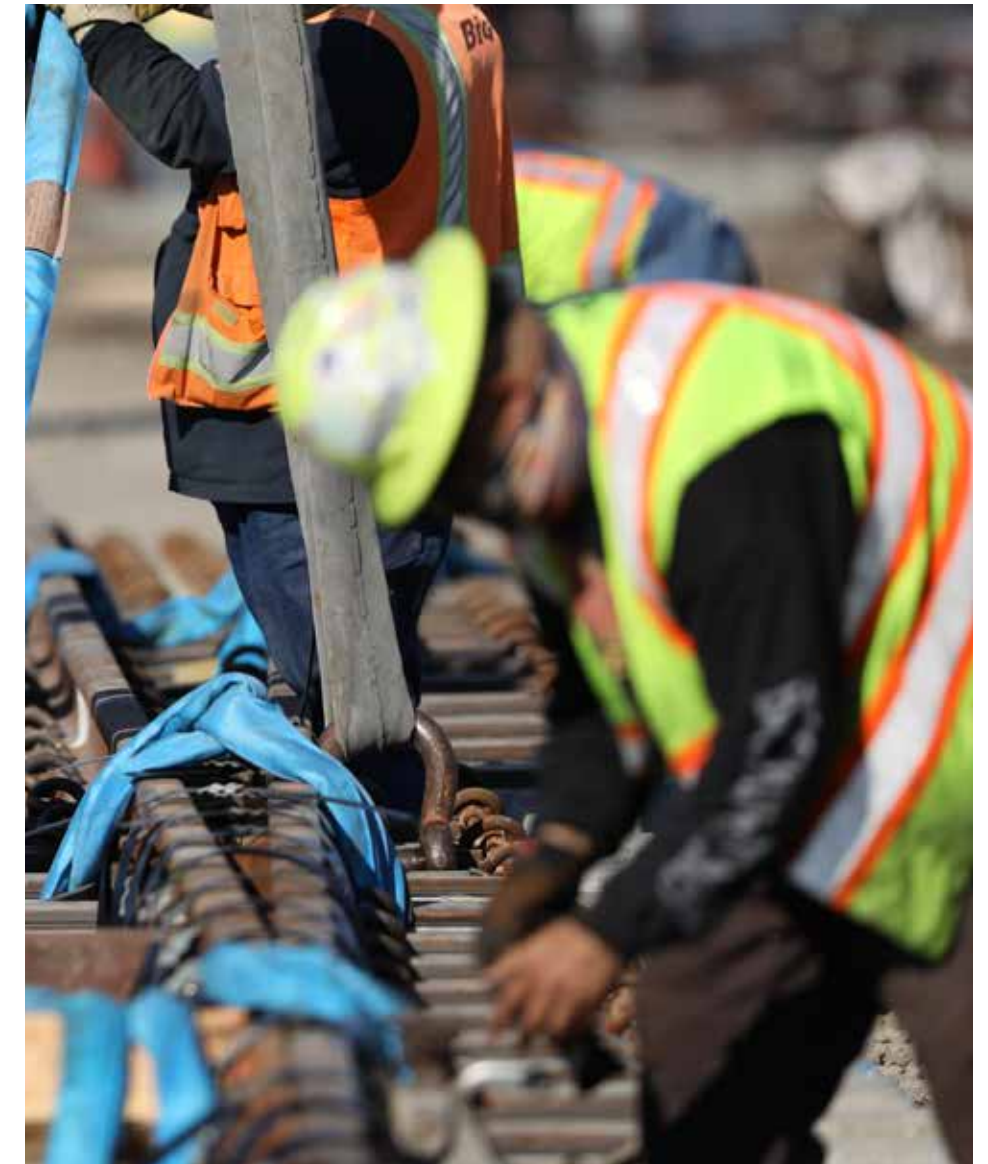
# THE STORY OF MEASURE RR

Bay Area voters in November of 2016 turned the proposed Measure RR into a reality when they overwhelmingly approved the request to raise \$3.5 billion in general obligation bond money to rebuild the backbone of BART. More than 70% of voters in the BART District (Alameda, Contra Costa, and San Francisco counties) cast ballots in favor of Measure RR in that election. The bond measure easily exceeded the two-thirds support requirement to become law.

Measure RR traces its origins to the dire situation BART faced in 2016 with its aging infrastructure. The transit agency had a growing backlog of rebuilding needs that had to be addressed quickly. If action wasn't taken the risk of a major system failure would have continued to grow. The challenge was compounded by the fact BART didn't have enough funding to do the needed rebuilding work. BART estimated that if nothing was done, in just 10 years nearly half of the system's assets including long stretches of track and power cables would be at the end of their design lives.

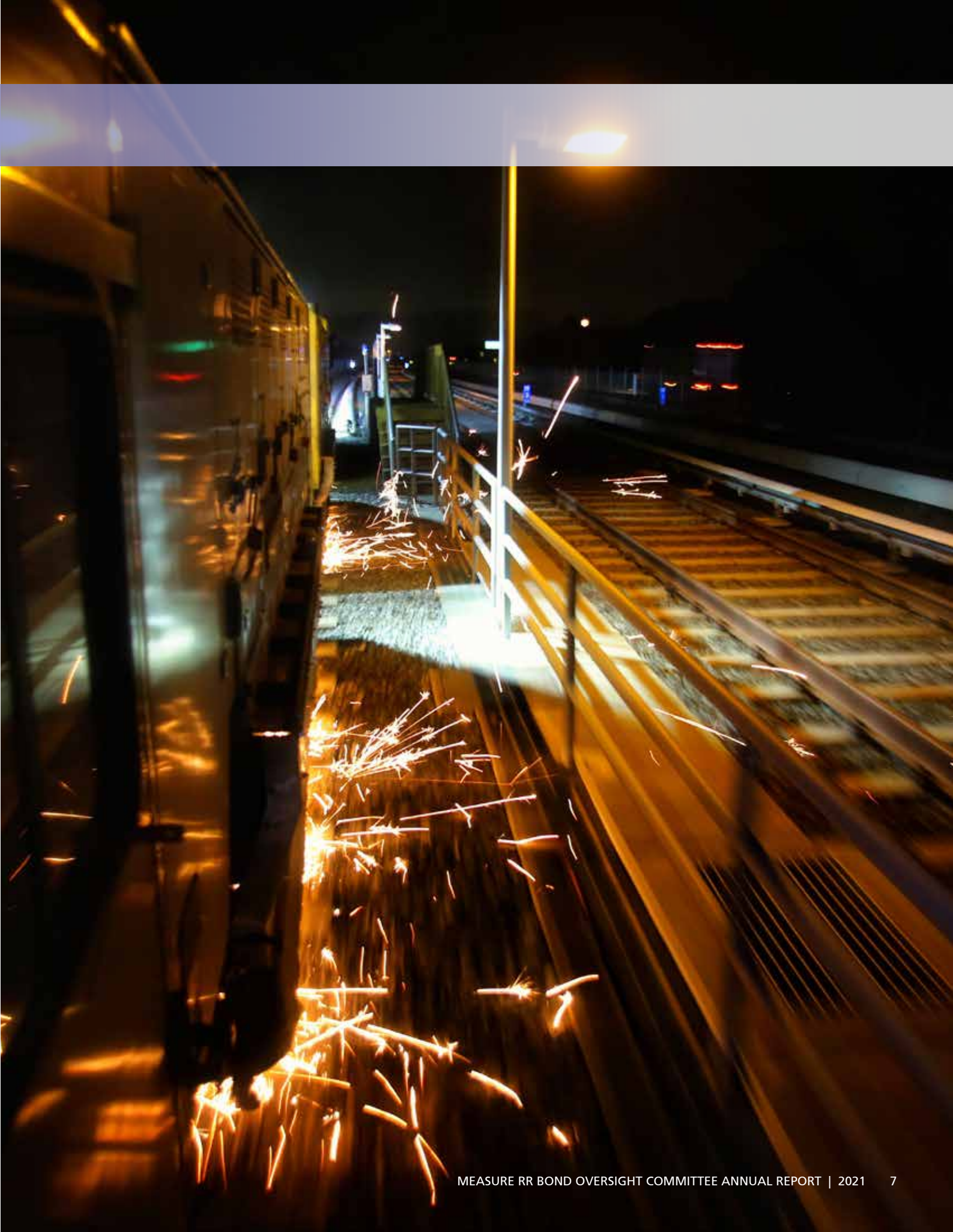
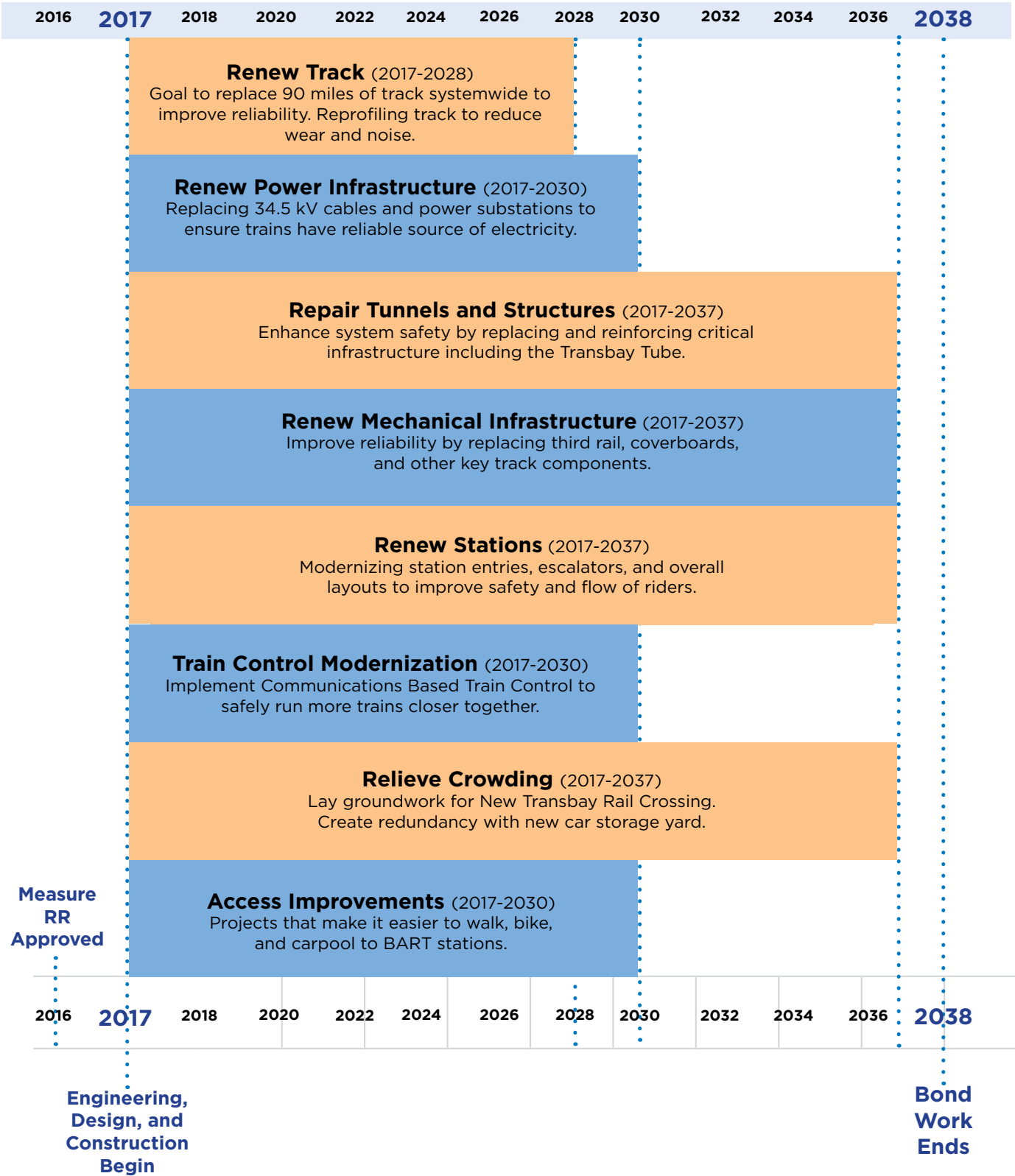
There was a need to educate the public about BART's predicament. BART held more than 300 community meetings to explain the system's needs as well as to hear from riders and taxpayers. After gathering that public input, the BART Board of Directors voted unanimously to put a \$3.5 billion general obligation bond before the voters.

Measure RR funding has been devoted to the system's most critical rebuilding needs first. That includes replacing track and traction power components that in many cases have been in place since the start of BART service in 1972.



# THE LIFE SPAN OF MEASURE RR

Measure RR work is organized in to these eight major project areas.



# BART RESPONDS TO THE CORONAVIRUS

In January 2020 when the news initially broke regarding the coronavirus, BART leadership mobilized immediately. The objective was to ensure BART was prepared for a multitude of scenarios in the event the virus spread within California. A task force was organized which began to pour over the “what ifs” and the data to determine how BART could best position itself to respond to a given situation. Several service scenarios were evaluated, and contingency plans developed. A key component of these plans was the ability to prioritize rebuilding projects which could be accelerated based on a number of factors including available personnel, materials on hand, and potential disruptions to global supply chains.

One of the most dramatic impacts of the pandemic on BART happened in March 2020 when the agency reduced its service hours amid a deep reduction in ridership. BART moved the end of its service day from midnight to 9 pm. Much of the rebuilding and track maintenance happens at BART during a time referred to as “the blanket” when trains are not operating. Before the pandemic the blanket for most of the system lasted roughly from 1:00 am - 4:30 am. With the revised service hours, the length of the blanket has nearly doubled which has offered a tremendous opportunity to advance infrastructure projects. As a result of the early planning the District was able to accelerate rebuilding efforts across four of the eight major program categories and reduce the length of time riders are, and will be, impacted by work on those projects. Here are some of the RR projects that have been accelerated during the pandemic.

- Downtown San Francisco 34.5KV electrical cable replacement project
- Oakland Wye/West Oakland 34.5KV electrical cable replacement project
- Rail Profiling for New Wheel Profile – multiple lines
- Third Rail Replacement Program
- Coverboard Enhancement
- Install Safety Barriers
- Running Rail Replacement – Systemwide
- Rail Direct Fixation Pad Replacement – Systemwide
- Earthquake Safety Program – Transbay Tube Retrofit
- Union City Station Modernization
- El Cerrito del Norte Station Modernization

## **Making the most of resources**

Capital projects are not paid for by operating funds, meaning BART’s substantial reduction in ridership and related revenue loss has not impacted this work. Additionally, to further reduce operating costs, BART has moved approximately 200 employees from operating funded work to rebuilding capital projects. This process is often referred to as load shedding and is allowing BART to make the most of its existing workforce by maximizing the number of people available to assist on projects during the system’s extended blanket, when operating hours are reduced.

## **Prioritizing worker safety**

BART’s efforts to accelerate capital projects during this pandemic would not be possible without the implementation of new anti-virus safety policies and protocols. BART is committed to following all CDC and county guidelines. Wearing masks is required at all BART properties, job briefings which used to take place in a huddle are now happening in a way which allows workers to practice appropriate social distancing. Additional vehicles are being used to transport workers to job sites. 55-gallon drums of

clean water and soap are deployed at work sites and workers have been instructed to wash their hands more often. Social distancing is enforced during breaks and mealtimes.

BART also requires all contractors who perform rebuilding work to follow CDC and county guidelines such as developing social distancing policies, and requiring masks, for all their employees. In instances where the task makes it challenging to achieve social distancing, BART workers are required to wear KN95 masks.

The committee will continue to monitor how the coronavirus pandemic could impact the timing of the delivery of RR projects.



# MONITORING PUBLIC IMPACTS OF LARGE PROJECTS

One of the responsibilities of the independent Bond Oversight Committee is to monitor the service and neighborhood impacts of rebuilding projects and what efforts were made to inform the public of the work. Service impacts are often unavoidable for major projects, but substantial public outreach is essential to ensure transparency and maintain public trust in the RR rebuilding program.

The year since the publication of this committee's last oversight report has been an especially busy period for major track rebuilding projects across the BART system. In that time BART and its contractors have successfully completed track rebuilding projects in Orinda, Hayward, and Richmond.

From May through June 2020 BART scheduled five weekend shutdowns between the Rockridge and Lafayette stations to complete the replacement of an interlocking near the Orinda Station. Interlockings are a railway's answer to intersections in that they make it easier for a train to safely move from one line to another. On shutdown weekends there is no train service between the impacted stations and riders are given the option to take a free bus to continue their trips. During this project, free bus rides were provided by AC Transit and County Connection. Riders typically had to add 20-25 minutes to their trips.

One of the weekends when a shutdown was scheduled was the Memorial Day holiday. BART often schedules track shutdowns on holiday weekends because while a typical two-day shutdown offers 36 hours for productive construction time a three-day shutdown can provide around 60 hours of wrenchtime. That represents a nearly 67% increase in time for productive construction. That extra productivity paid off for riders as BART and its contractors were able to reach their construction goals ahead of schedule and cancelled the final scheduled shutdown weekend for the project. In addition to replacing the interlocking workers also installed 3,000 feet of new rail, replaced 1,200 tons of rock ballast to stabilize the track, and replaced the platform edge tiles at Orinda Station.

A similar track rebuild happened in August and September of 2020 near the Hayward Station and required four weekend shutdowns of train service between the Bay Fair and South Hayward stations. Riders who used the free buses provided by AC Transit typically had to add 20-40 minutes to their trips. Five weekend shutdowns were originally scheduled for this project, but the construction team made so much progress in the first four weekends that the last planned closure was cancelled. In addition to installing a new interlocking work crews replaced some 300 badly worn wooden ties with longer-lasting concrete ones.

The latest major track replacement work happened near the Richmond Station in early 2021. This work required five weekends in January through March when train service was not offered between the Richmond and El Cerrito del Norte stations. BART riders were able to take free buses provided by AC Transit between the two stations and the typical added travel time was 15 to 20 minutes.

BART engaged in extensive outreach to alert the public about the work and service impacts for each of the major track projects. News articles were posted on the Planned Service Advisory page of BART.gov approximately two months before each of the first shutdown weekends. For each project a news release was crafted and shared with a distribution list of more than 300 local news agencies and reporters. The BART Communications Department conducted multiple interviews with the media.

Posters with closure dates and service maps were installed in impacted stations. Messages about the work and its impacts were posted on Twitter and Facebook throughout construction and special service advisories were issued on construction days. BART purchased online and radio advertising to promote the work and impacts. BART's Government and Community Relations Department developed neighborhood notices that were mailed to residences and businesses within a half mile of each construction site. BART staff also provided project briefings for elected officials in all impacted communities.

The oversight committee will continue to meet its mandate by closely monitoring the public impacts of rebuilding projects. Among the work the committee will be following is a series of projects scheduled to happen between the Hayward and Union City stations. The work includes a major track rebuild as well as initial work on what will become a new Fleet of the Future storage facility at Hayward Maintenance Complex. The work is expected to require the replacement of train service with free buses between South Hayward and Union City on a series of non-consecutive weekends in 2021 and an undetermined number of weekends in 2022. Members of the public can get the latest details on service impacts resulting from rebuilding projects by going to [www.bart.gov/schedules/advisories](http://www.bart.gov/schedules/advisories).



# INNOVATIONS IN INFRASTRUCTURE

BART continues to make strides in implementing new technology and tools to monitor equipment performance, reduce train delays, and manage improvement work. Performance data is important in assessing how BART is doing in several areas including on-time performance and overall reliability. This information is a powerful tool that BART uses to take predictive actions and avoid future service impacts. These innovations in infrastructure are already saving time for riders and dollars for taxpayers.

## Send in the drones

BART has a dozen radio towers strategically placed across the system that are invaluable for communication and monitoring local conditions. In the past these towers would be inspected by professional riggers who would need to physically climb the towers and whose work could be limited by conditions. But now for the first time BART is using drones to safely inspect the towers. The drones provide both video and still images of the towers in real time and can offer a more thorough look if necessary. An inspection process that used to take three weeks can now be accomplished in two days at a cost savings of 45% or \$3,000 per tower site for BART.

BART is now outfitting its radio towers with professional grade weather stations capable of providing real-time localized data that can be used to inform operational decisions. In the future it can provide the Communications-Based Train Control System with data to adjust train performance levels for weather concerns such as high-temperature conditions. A high heat indication can also be generated for track crews to be dispatched to an area to look for signs of distress in the rail.

## Microenvironment monitoring

Heat issues generally contribute to major delays associated with train control as equipment fails during spikes in temperature. Using previous years' data, sensors were installed starting in August



2020 in 15 of the historically worst impacted train control rooms. This new gear allows maintenance teams to address the problem before it impacts service. Before the upgrade, train control rooms were inspected manually. In June these manual inspections couldn't prevent multiple heat-related issues, which resulted in 297 train delays systemwide. But in September after the new devices were installed multiple heat-related alerts were sent and the number of train delays dropped to only 7.

Flooding issues also contribute to train control delays and can prevent patrons from accessing parts of the stations and parking lots. New algorithms, dashboards, and alerts for managing sump pumps have been created, which help the maintenance and operations team resolve water issues before they impact patrons and train movement. Seven locations with the new HIGH RISK of Flooding Alerts have been implemented. With the new system integrated maintenance has been able to identify and resolve problems such as sump pump circuit breaker trips, sump pump overwhelmed by an influx of water, loose wires, failed controllers, grease, and junk clogging the sump pump, etc. Identifying and resolving issues like these has prevented flooding of the parking lot and walkways at the Coliseum Station.

## Wind: the nemesis of coverboards

Wind has never been a friend to coverboards, the long arc-shaped pieces of white fiberglass that protect the third rail that provides power for BART trains. Strong winds can blow aging coverboards into the trackway and delay service. BART is now partnering with the UC Berkeley Division of Computing, Data Science, and Society to take on this decades old challenge. Students are taking data from a variety of sources including data logs from the Operations Control Center, weather stations, and more to create algorithms to help determine when and where BART should dispatch maintenance crews to inspect coverboards. The goal is to use a data-driven approach to reposition maintenance staff to high wind locations and reduce recovery times.

## Rewriting the book of how things are done

Rebuilding projects at BART are performed by the book, or in this case several books. BART staff did a top to bottom review of key policy manuals and updated these important texts to provide improved guidance for projects and ensure the latest industry-best practices are being implemented.

The updated Resident Engineer Manual now includes 40 examples of how to administer both construction and procurement contracts. The rewrite of this manual also added a chapter to provide construction guidance while executing design-build contracts, which is a first for BART. The Construction Management Quality Assurance Audit Checklist has been revised to provide a comprehensive step-by-step list of every requirement on BART commercial construction contracts. This includes 500 checks that must be followed. The revised document is allowing BART management to more effectively assess a project's on-going progress and identify potential problem areas.

Furthermore, the District is shifting to unit-price contracts and the move is already yielding results. Unit-price contracts only pay contractors for actual quantities performed, supplied, or constructed on a given project. These contracts establish pre-approved work rates, which lower the risk for contractors and encourage more competitive bids.

# MAJOR PROJECTS: RENEW TRACK

A priority of the Measure RR rebuilding program is to replace aging track components which in some cases date back to when BART first began service in 1972. Installing new rail is essential for BART to bolster the safety and reliability of its service. As of the end of 2020 BART had replaced 34 miles of track since the inception of the RR rebuilding program.

BART has completed successful track rebuilds in Oakland, Concord, Lafayette, Orinda, and Hayward. These projects often involve not just replacing rail, but also include other critical track components and station improvements. As an example, BART has replaced 31 track switches. Those switches are large track components which are typically located together in small groups to form an interlocking. Interlockings are the sections of track that allow trains to move safely from one track to another. These are critical track components which can cause major service delays if they malfunction. Replacing interlockings not only enhances reliability but results in a more stable riding experience for BART riders.

## A new way to keep the rail in place

The innovation of the BART rebuilding effort is apparent in the track renewal program when it comes to the replacement of Direct Fixation (DF) fasteners which are used to attach the rail to the ground or aerial structure. DF fasteners have been a part of BART since the beginning. The original DF fasteners are secured by bolts and are highly labor intensive to replace as pads can break and the bolts can strip or shear. BART's new fastener pad is secured with a clip and can be replaced quickly. These new fixation pads feature a steel plate wrapped with vulcanized rubber and are better at isolating the rail, preventing stray current, and result in a smoother ride.

There are 345,000 DF fasteners throughout the system. BART has a five-person team with a goal of replacing 10,000 fasteners per year. With the pandemic's reduction in service resulting in a longer work window the replacement rate has nearly tripled.

Measure RR dedicates a total of \$625 million toward renewing track. Through March 2021 \$255.1 million in RR funding has been invested in track renewal projects.



Cement ties like those to the right are replacing aging wooden ties and help to provide a more stable ride.

## Active Projects Completed or Under Construction

Status as of 12/31/2020





# MAJOR PROJECTS: REPAIR TUNNELS AND STRUCTURES

The Repair Tunnels and Structures program includes critical improvements to BART's safety assets. At the end of 2020 crews finished replacing the yellow platform edge tiles at Hayward Station as part of the Measure RR Platform Edge Rehabilitation Project. The goal of the project is to improve safety and reliability by preventing deteriorated material from entering the right of way and removing potential platform tripping hazards. BART has completed similar platform edge replacement projects elsewhere in the system including at the Lafayette and Orinda stations. The work to rehabilitate the platform edge involves removing the edge detection tiles and concrete or pavers underneath, removing the steel platform edge and replacing it with a stainless-steel edge, and installing new pavers and edge detection tiles. To reduce impact to patrons and train operations, this work typically is scheduled concurrently with major track rebuilding efforts which require impacted stations to be closed on weekends providing a safe workspace for crews. This is an example of BART maximizing construction time to complete multiple projects at once to reduce public impacts.

Riders are not the only group that benefits from efforts to repair tunnels and structures. The Systemwide Safety Barrier Improvement Project provides an important improvement for worker safety through the construction of a physical "safety" barrier separating workers from the official track zone, which is an area within 6 feet of the outermost rail. The barriers to be installed are comprised of either conventional chain link fence or post and chain, which serves as a deterrent for workers to enter the track zone. Once approved by System Safety, the established physical barrier reduces the need to slow down trains as they pass through the work area. This greatly reduces the impacts to train operations while also enhancing protections for workers. This project also included the installation of 14 lift assist bollards at the maintenance ways systemwide. These barriers prevent unauthorized vehicles from entering the right of way.

Measure RR dedicates a total of \$570 million toward the repair of tunnels and structures. Through March 2021 \$105.9 million in RR funding has been invested in tunnels and structures projects.

Platform edge tile replacement work at Hayward Station.



## Active Projects Completed or Under Construction

Status as of 12/31/2020





# MAJOR PROJECTS: RENEW MECHANICAL INFRASTRUCTURE

Replacing mechanical support units that are vital to the BART system is not only improving reliability but also enhancing safety for riders and employees. A prime example of this work is the Coverboard Enhancement Project. The goal of this project is to replace the miles and miles of curved fiberglass boards that protect the electrified third rail, the rail that powers BART trains. When a coverboard is compromised, it no longer protects the third rail from exposure and can obstruct the right of way. This obstruction can interrupt power to the trains, leading to significant service impacts. Coverboard failures are being reduced through the installation of additional supports and the replacement of aging and damaged boards. A total of 59 miles of third rail coverboard have been improved through the enhancement project.

Renew Mechanical also includes increasing fire safety at BART's operations yards where railcars are stored and repaired. Construction has been completed at BART's Concord Yard and work is now underway on safety enhancements at the Oakland and Richmond yards. Additionally, design work has been completed on fire safety upgrades at the Hayward Yard.

Measure RR dedicates a total of \$135 million toward renewing mechanical support structures. Through March 2021 \$51.7 million in RR funding has been invested in renewing BART's mechanical infrastructure.

Aging coverboards that once protected the electrified third rail now being loaded onto trucks.



## Active Projects Completed or Under Construction

Status as of 12/31/2020



# MAJOR PROJECTS: RENEW STATIONS

Some of the most visible improvements to result from the Measure RR rebuilding program are now taking shape as the result of station renewal projects. In downtown San Francisco the first three new escalators that are part of a massive overhaul are currently being installed at the Powell Street and Civic Center stations. The \$96.5 million Market Street Escalator Project is funded by Measure RR and will bring 41 new escalators to BART's four downtown San Francisco stations. Many of the escalators being replaced are among the oldest and most heavily used in the BART system.

The new escalators incorporate the latest technology with multiple improvements:

- Safety enhancements that comply with the latest code requirements.
- New lighting systems include programmable LED skirt lighting.
- Materials used in fabrication are lighter in weight yet equally or more robust than heritage escalators.
- Improved reliability and shorter down-time - advanced controller equipment and real-time remote monitoring of escalators allows for BART to know the moment an escalator is not available for public use as well as the cause of the shutdown.

The escalator replacement work is happening in conjunction with the Market Street Canopy Project to ensure the escalators are well protected and riders are provided with revitalized entrances to BART's busiest stations. The canopy project is modifying as many as 22 entrances at downtown San Francisco stations that include construction of overhead canopies, new entrance gates, screens with real-time transit information, and multiple security cameras.

Downtown San Francisco stations are not the only locations being upgraded. In early 2021, Phase 1 of the El Cerrito del Norte Station Modernization Project was completed. The upgrades and improvements include a fully modernized south entrance, two new elevators, two new staircases, an additional fare gate array, major fire/life safety upgrades, complete LED and emergency lighting upgrades and a dramatic floor-to-ceiling exterior window wall to brighten the station. In late March 2021, Phase 2 of the El Cerrito del Norte Modernization Project was also successfully completed, which included the construction of two new public restrooms, storm water improvements, and two art walls.

Station modernization projects are also advancing at Union City and 19th Street in downtown Oakland. The 19th Street Modernization Project will bring a series of upgrades to the station including the renovation and reopening of public restrooms, the replacement of existing light fixtures with energy-efficient LED lighting, the installation of new glass railing and fare barriers, and a new elevator at the north end to improve passenger flow from the concourse level to the platform levels.

Measure RR dedicates a total of \$210 million toward renewing stations. Through March 2021 \$32 million in RR funding has been invested in station renewal.



Renovated entrance at El Cerrito del Norte Station.

## Active Projects Completed or Under Construction

Status as of 12/31/2020



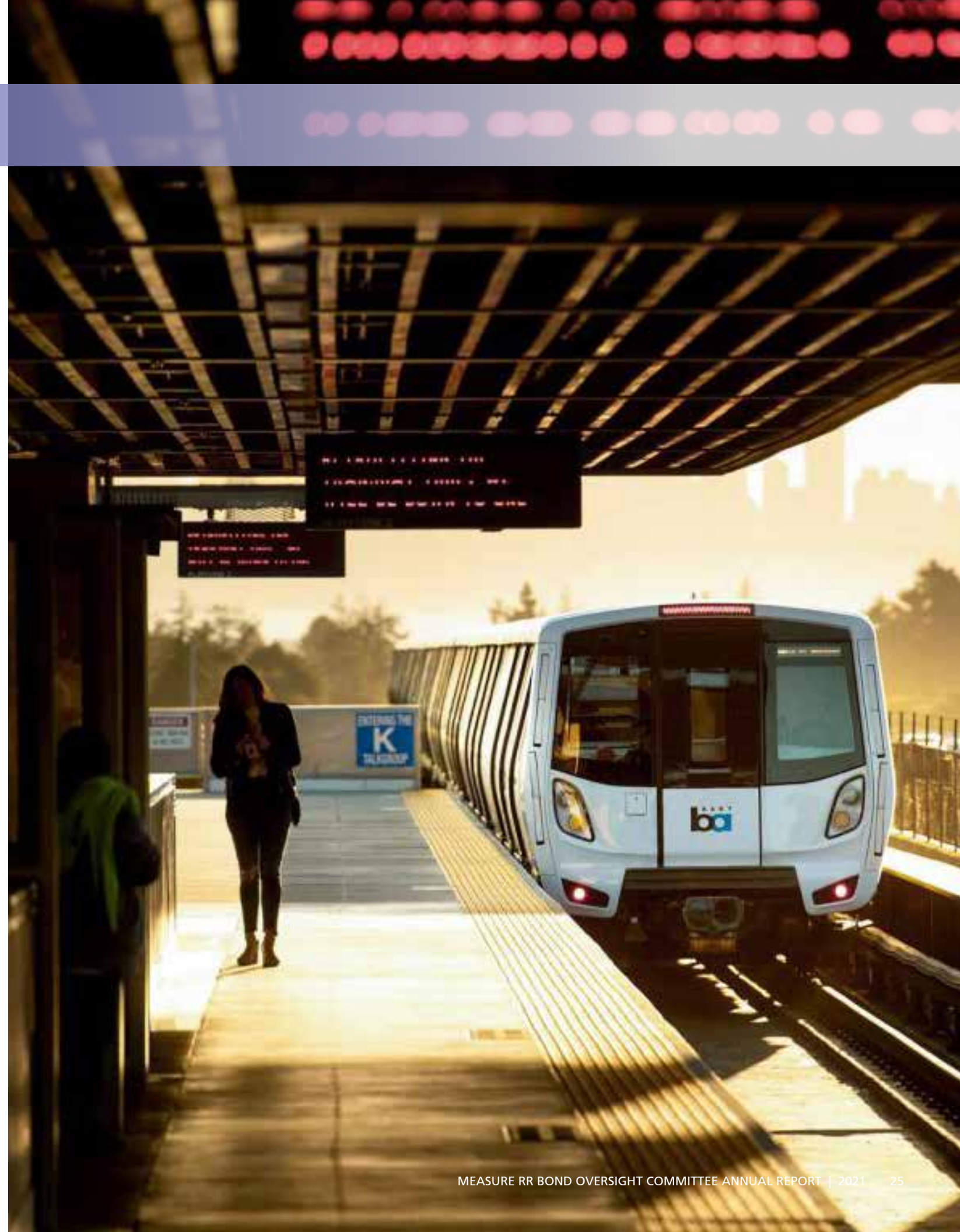
## MAJOR PROJECTS: TRAIN CONTROL MODERNIZATION

BART plans to implement a new state-of-the-art Communications Based Train Control (CBTC) system in the next 11 years. The Train Control Modernization Project is part of the broader Transbay Corridor Core Capacity Program, which also includes 252 additional new railcars, a new railcar storage facility, and five new traction power substations. In September 2020 the Federal Transit Administration issued a nearly \$1.2 billion Capital Investment Grant Full Funding Grant Agreement for the Core Capacity Program, a milestone achievement that will help BART to implement a new train control system that will improve reliability and increase capacity.

BART's current fixed-block train control system is very safe but limits the frequency and number of trains BART can run. The current system relies on widely spaced signal blocks to denote train occupancy on the track. This contributes to longer distances between trains and increased travel times. A new CBTC system will detect a train's location using "moving" block technology that allows for more efficient train movement. This translates to a shorter distance between trains (while maintaining safe braking/stop distances) and means BART can safely operate more trains, improve reliability in service, and decrease travel times. CBTC could boost BART's Transbay capacity by as much as 35%.

BART's plan is to test the new CBTC technology on a test track. Once successfully tested, the new train control system will then be deployed in eight geographical phases, with the ability to run 28 trains per hour in each direction through the Transbay Tube in 2030 and up to 30 trains in 2032.

Measure RR dedicates a total of \$400 million toward the implementation of a new train control system. Through March 2021 \$33.9 million in RR funding has been invested in train control modernization.







# FUNDING RR WITH GREEN BONDS

BART has now offered three tranches of climate-certified green bonds totaling more than \$1.3 billion to support the Measure RR rebuilding program since work started in 2017. The third and latest tranche of Measure RR bonds was offered to the public in August of 2020. The third tranche offering was for \$700 million and is the largest of the three offerings. The second tranche offering in August 2019 was \$360 million and the initial offering in 2017 was \$300 million.

At the time the third tranche was offered Moody's Investor Service gave BART's General Obligation (GO) Bond Program a credit rating of Aaa, stable and cited BART's exceptionally large and diverse tax base that encompasses a major component of the Bay Area economy and favorable wealth profile of service area residents support its strong credit profile. S&P Global Ratings assigned a AAA long-term credit rating to BART's GO Bonds as well.

The initial plan when the Measure RR program started was to offer bonds in equal installments every two years for 18 years as funds were needed to rebuild the system. If BART stayed on this original schedule, then the third tranche would not have been offered until 2021 and the total amount of bonds issued through the first three tranches would only be about \$900-950 million. The fact BART is offering more bonds sooner than originally anticipated is an indication that the RR rebuilding program is ahead of schedule. Projects are accelerating thanks to expanded work windows and load shedding, which is allowing more BART personnel to work on capital programs. This advancement requires more resources earlier than originally anticipated.

All the bonds issued to support Measure RR are labeled as climate certified. BART is the first transit agency on the West Coast to earn such a distinction. In June 2017, BART sought and received certification through the Climate Bonds Initiative's Low Carbon Transport Standard. The Climate Bonds Initiative promotes investments in projects that bring the world closer to a low carbon and climate resilient economy consistent with the 2015 Paris Agreement. As the market for these green bonds grows costs for climate-friendly projects everywhere may decrease.

The starting threshold for investing in Measure RR bonds is \$5,000. During all three bond sales, BART offered certain maturities with a preference for retail investors who live in the three counties that comprise the BART District (Alameda, Contra Costa, and San Francisco).

The Series 2020 Green Bonds received 83 retail orders, totaling \$199.905 million. In aggregate since 2017, Measure RR bonds received \$658 million in orders, indicating that retail orders made up 15.6% of all orders placed for Measure RR.

Offering green bonds is consistent with BART's long-term commitment to sustainability. BART has set a goal that 100% of its energy will be generated from zero-carbon sources by 2035. All conventional BART trains are 100% electric. While a typical car gets 21 miles per gallon of gas a BART rider gets the equivalent of 224 miles per gallon.

## Measuring up to Bond Requirements

BART's bond spending follows IRS rules. Those rules say that at the time of issuance the BART District needs to have a reasonable expectation that 85% of the bond proceeds, including interest earnings on the proceeds, will be spent within three years. BART has progressed on Measure RR projects at a pace that exceeds this requirement. This reflects the District's success in delivering Measure RR-funded work in a timely manner.

Measure RR gives BART the authority to offer up to \$3.5 billion in general obligation bonds to pay for rebuilding projects. The funds to pay back the bonds are raised through property taxes assessed in Alameda, Contra Costa, and San Francisco counties. When the program started BART estimated the average yearly tax rate over the life of the bond program would be \$8.98 per \$100,000 of assessed property value. BART further projected that the yearly tax rate would range from \$0.80 to \$17.49 per \$100,000 of assessed value. In the latest assessment for Fiscal Year 2020-21 the tax amount was \$6.80. This tax rate will fluctuate from year to year and is likely to increase deeper into the life of the bond measure as additional bonds are issued.

BART anticipates that each bond tranche will be paid off within 30 years of being issued. BART has worked with its financial advisor to develop a financing plan to ensure funds are available as needed for projects while taking into consideration the rate paid by taxpayers. From start to finish, BART estimates property owners could pay off the bonds associated with Measure RR in 48 years.

## RR PROGRAM EXPENDITURES OVERVIEW

Program	Expended Through March 2021	% Expended Out of Total Bond Investment	Forecast Expenditures		
			SHORT-TERM (Through September 2023)	MID-TERM (Through 2025)	LONG-TERM (Through End of Bond)
Renew Track	\$255.1	41%	\$382	\$400	\$625
Renew Power Infrastructure	\$324.9	27%	\$573	\$608	\$1,225
Repair Tunnels and Structures	\$105.9	19%	\$136	\$268	\$570
Renew Mechanical Infrastructure	\$51.7	38%	\$77	\$65	\$135
Renew Stations	\$32.0	15%	\$125	\$148	\$210
Train Control Modernization	\$34.0	8%	\$89	\$286	\$400
Relieve Crowding	\$37.9	19%	\$76	\$69	\$200
Access Improvements	\$24.9	18%	\$37	\$86	\$135
<b>TOTAL</b> In (\$ Millions)	<b>\$866.4</b>	<b>25%</b>	<b>\$1,495</b>	<b>\$1,930</b>	<b>\$3,500</b>

# MEASURE RR SPENDING BREAKDOWN

# RR - ONLY PART OF THE SOLUTION

Total Measure Investment	\$ Millions	% of Total Bond	Benefits		
			 Safety	 Reliability	 Crowding +Traffic Relief
<b>REPAIR AND REPLACE CRITICAL SAFETY INFRASTRUCTURE</b>	<b>\$3,165</b>	<b>90%</b>	✓	✓	✓
Renew Track	\$625	18%	✓	✓	
Renew Power Infrastructure	\$1,225	35%	✓	✓	
Repair Tunnels and Structures	\$570	16%	✓	✓	
Renew Mechanical Infrastructure	\$135	4%	✓	✓	
Renew Stations	\$210	6%	✓	✓	✓
Train Control Modernization	\$400	12%	✓	✓	✓
<b>RELIEVE CROWDING, REDUCE TRAFFIC CONGESTION AND EXPAND OPPORTUNITIES TO SAFELY ACCESS STATIONS</b>	<b>\$335</b>	<b>10%</b>	✓	✓	✓
Relieve Crowding	\$200	6%		✓	✓
Access Improvements	\$135	4%	✓	✓	✓
<b>TOTAL</b>	<b>\$3,500</b>	<b>100%</b>			

BART is currently collecting and analyzing data to produce a FY22 Capital Improvement Program (CIP), which is scheduled to be published late summer/fall 2021. BART had been scheduled to update its CIP in FY21 but deferred it one year at the request of the Metropolitan Transportation Commission due to the pandemic.

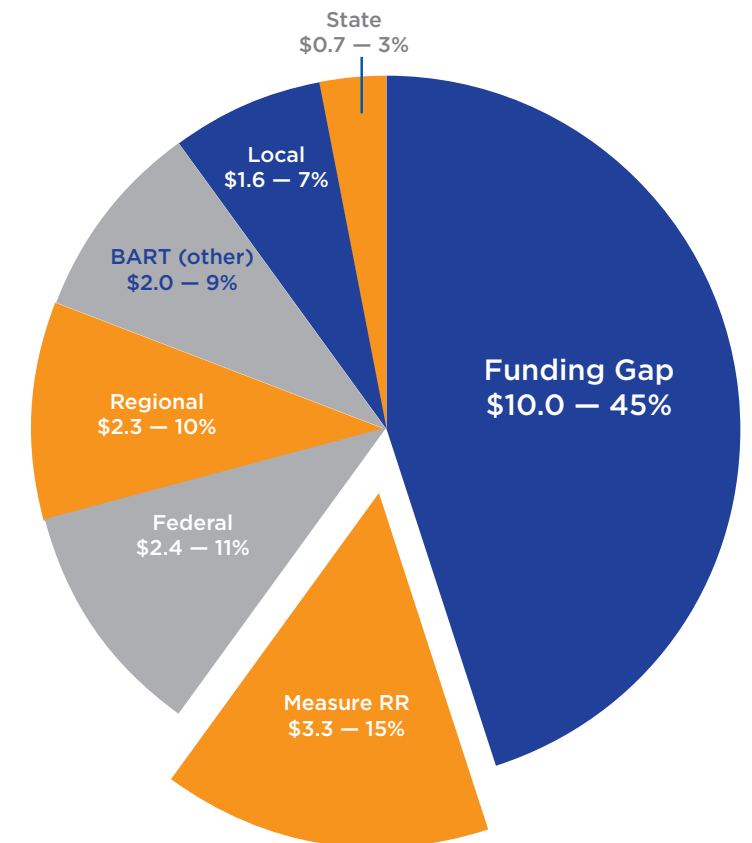
Measure RR will raise \$3.5 billion to help rebuild BART's aging system (\$3.3 billion of that is expected to be spent through fiscal year 2033 while the remaining \$200 million will be spent after). The measure is an important part of BART's overall plan to replace its decades-old infrastructure but it's only part of the solution. BART's current CIP shows the District's total capital need through Fiscal Year 2033 is \$22.4 billion. As shown in the chart below, funding sources identified to rebuild and enhance the system include Measure RR and other BART funding as well as federal, state, regional, and local sources. These combined sources total \$12.4 billion, which is \$10 billion short of the District's total 15-year need of \$22.4 billion.

BART faces long-term capital funding challenges and continues to pursue additional grants. BART's grants efforts paid off in September 2020 when the Federal Transit Administration issued a nearly \$1.2 billion Capital Investment Grant Full Funding Grant Agreement for BART's Transbay Corridor Core Capacity Program. The grant is the largest BART has ever received in its history. In 2020, BART also secured a \$60M State Solutions for Congested Corridors Program grant for the TCCCP. The federal and state grants will bolster Measure RR funds supporting the installation of a new Communications-Based Train Control System, a new railcar storage yard at the Hayward Maintenance Complex, and installation of new traction power substations.

## BART FY19-33 Capital Investment Needs and Funding Sources (Billions)

**Total capital need: \$22.4**  
**Total funding identified: \$12.4**  
**15-year capital funding gap: \$10**

NOTE: All numbers are noted in billions.

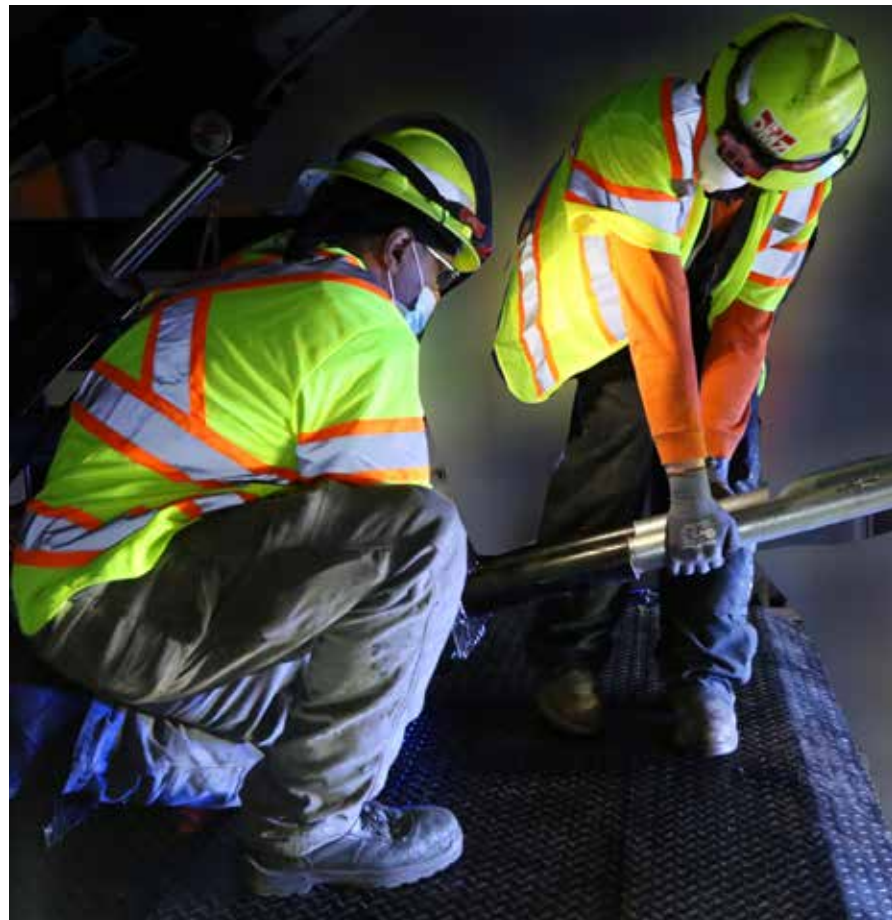


# MEASURING COST EFFECTIVENESS

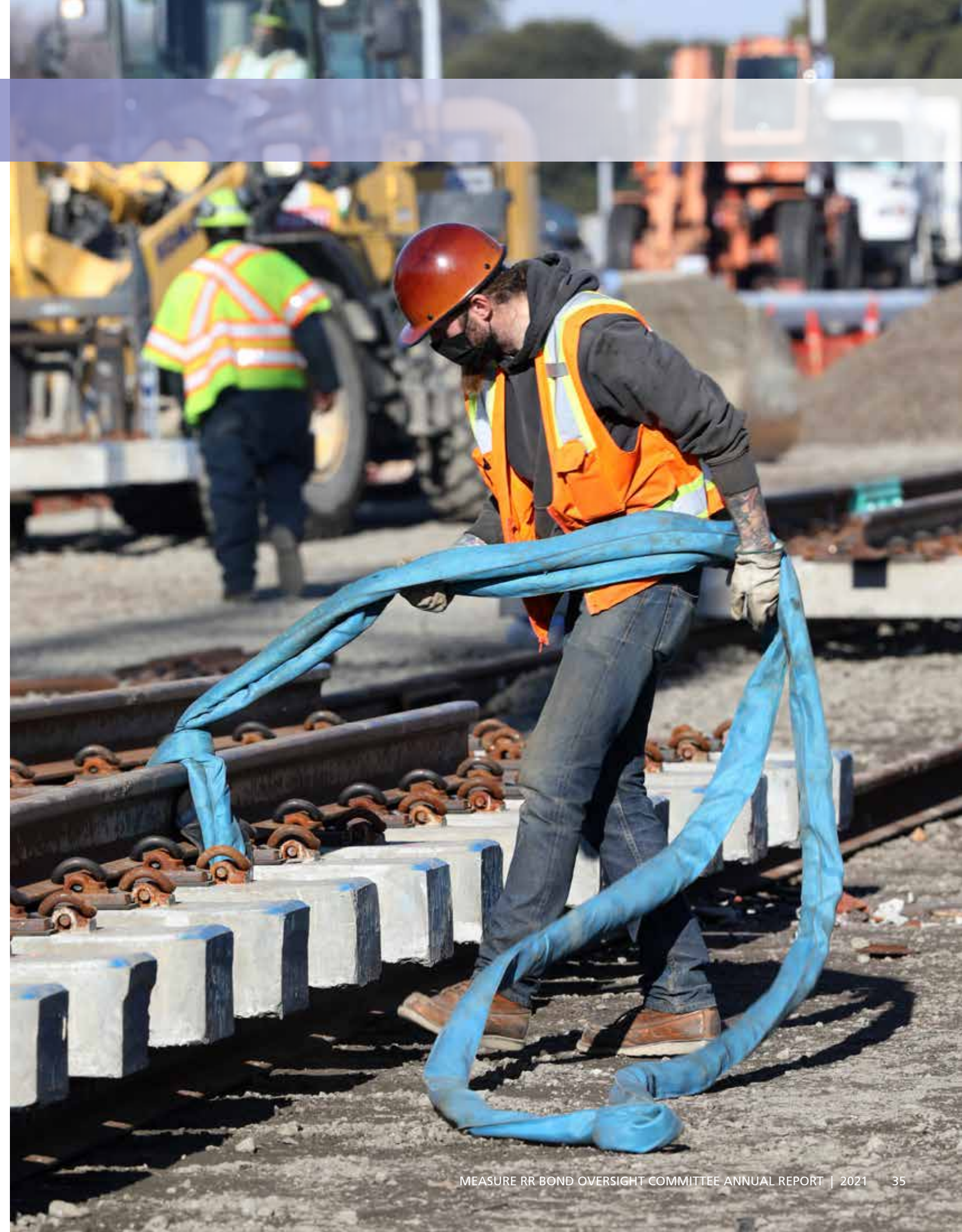
One of the mandates of the Bond Oversight Committee is to review the Measure RR rebuilding program for its cost-effectiveness. The foundation of how the committee reviews the cost effectiveness of the overall program is by asking the BART team what will be done, when it will be done, and how much money and time will it take to reach completion for each program. The committee regularly evaluates what was accomplished (earned value), when it happened (planned value) and how much did it cost (actual costs).

An important way the committee meets its mandate is by the evaluation of work progress using a combination of reviewing completed milestones against what was forecasted in previous quarters, discussion of watch list items (factors which may impact the program's budget or schedule) and through Earned Value Management (EVM). BART utilizes EVM as a project control tool to measure the progress of individual projects and larger program categories. EVM is a popular and well-established project management tool in government contracting and other sectors.

All Measure RR-supported rebuilding projects are tracked through Earned Value Management. The primary goal of EVM is to determine whether the value of work completed so far is worth the money spent to get to that point. EVM provides both a Cost Performance Index as well as a Schedule Performance Index and can be a useful tool when it comes to project forecasting. Work is evaluated through EVM at its earliest stages, but the data takes on more meaning as the program matures.



Typically, BART staff do a deeper dive on the progress of a project when it reaches 25% completion. When BART staff analyzes EVM findings they are looking for trends that emerge over multiple quarters. Projects that are on track should hover around 1.00 in both the Cost Performance Index and the Schedule Performance Index. Anything that rises above 1.20 or falls below 0.80 receives additional scrutiny from BART staff with the hope of identifying and mitigating issues before they grow into larger problems. It's normal for some projects to perform better than others at different times. The Oversight Committee receives regular Earned Value Management updates from BART staff and is advised if any issues are identified that require mitigation.





## PUTTING PEOPLE TO WORK



Rebuilding projects supported by Measure RR are critical to revitalizing BART and have a secondary benefit of supporting high-quality jobs that strengthen the Bay Area's economy. These jobs are especially important now with the economic challenges brought on by the COVID-19 pandemic. In 2020 Measure RR supported 848 Full Time Equivalent (FTE) jobs, 358 FTE consultant positions and 270 FTE contractor jobs. These employees and contractors are working across the BART District.

Due to the pandemic BART has used load shedding to shift employees from their normal operational duties to supporting capital projects. The practice of load shedding allows BART to avoid layoffs and make the most of currently available resources to accelerate rebuilding work. In the last year BART has shifted approximately 200 positions to capital projects and anticipates continuing this practice while service hours are reduced due to the pandemic.

BART's workforce reflects the rich diversity of the Bay Area it serves. The agency is striving to build upon that diversity, especially in areas that have historically been male-dominated professions. A small but growing number of women are entering the ranks of track and structure workers at BART, where they do the same strenuous physical labor as their male counterparts: swinging sledgehammers, welding rail, and driving heavy equipment.

Shelley Culloty became the first female member of the track department when she was hired by BART in March 2009. "I love my job," said Culloty. "I came from Union Pacific, I had worked there for about 11-and-a-half years, and I had not worked with any other females there, either, so coming to BART was kind of natural for me. Working around all men, you have to have some thick skin. But if you work hard ... you can come in and make a good life. I know it's provided me a home and everything I could ever want for my children and my family."



The work was physically demanding but it got easier as it went along, she said. "I started digging ties, around 20-some ties a day, and worked up to 60-some ties a day. I was at the age of 49 when I started here, starting all over again, and I thought, 'Oh my God, can my body handle this?' And it did. I would go home and be worn out, but then I would come back again the next day to do it again. I've always been determined."

Thu Nguyen trained at the Cypress Mandela Training Center near Fruitvale BART Station in Oakland and was hired by BART in February 2020. "I'm so happy, because I know I can do the job. I feel like whatever the men can do, I can." Nguyen takes great pride in her work. "We've been putting pads down for track, changing out pads, checking the track, taking all the old material out," said Nguyen. "Whatever the next step is, I work hard to be prepared. I'm very happy to be working here at BART."

## SMALL BUSINESS OUTREACH

BART's Office of Civil Rights takes the lead on efforts to encourage small businesses to bid on projects funded by Measure RR. This work has been complicated by the global pandemic. Before the arrival of COVID-19, BART held large networking gatherings where prime contractors would discuss work they had available and interview small business subcontractors to look for a good fit. But those type of events are no longer appropriate in a world where social distancing is a priority.

BART has transitioned its outreach to virtual events with an emphasis on providing small businesses with information that is relevant to the current economic situation. There has been strong turnout for these virtual events as more than 600 participants were reached through these outreach efforts in 2020. Now prime contractors are setting aside as much as a full day to hold virtual "speed-dating" sessions that allow them to interact with dozens of potential subcontractors. The meetings can be as short as five minutes long with a five-minute buffer in between. Prime contractors must provide BART with their schedules to show whom they interviewed. Attendees have enjoyed the flexibility of being able to participate in outreach events from anywhere and as a result, BART expects that it will continue to leverage virtual events post-pandemic.

This outreach is especially important as small businesses play a vital role in rebuilding BART. Private contractors are providing valuable expertise for numerous projects including major track rebuilds, replacing power infrastructure, repairing tunnels, and renovating stations. Small businesses have been awarded 31% of all Measure RR-supported contracts.

BART's Office of Civil Rights administers a Non-Discrimination Program for Subcontracting on Non-Federally Funded Contracts to ensure prime contractors don't discriminate when subcontracting out work. Additionally, BART has a Small Business Program for non-federally funded contracts that provides bid preferences for qualified small businesses. The Small Business Program also includes small businesses that are Local Small Businesses, Disabled Veteran Business Enterprises, and Lesbian, Gay, Bisexual, and Transgender Business Enterprises.

The District's Small Business Supportive Services and outreach have been the critical reason why 681 RR contracts have been awarded to small businesses through the end of 2020. Those contracts have a value of \$197 million.



# Committee Activities and Expenditures

**As part of this report, the Bond Oversight Committee also presents a summary of its activities and expenditures.**

## • May 29, 2020 – Regular Meeting

Oversight Committee holds its first meeting via WebEx conference call under state rules for public meetings implemented in response to the pandemic. Committee elects Catherine Newman to be vice chair with no objections. Committee unanimously appoints vice chair Newman, committee member Michael Day, and committee member Marian Breitbart to serve on the 2021 RR Annual Report subcommittee. Full committee unanimously approves 2020 RR Annual Report. BART staff provides program update with details on how the reduction in service hours is allowing workers more time to advance multiple projects. Committee Chair Michael McGill asks staff to schedule longer meetings so there's more time to ask questions. Staff adds an hour to schedule for next meeting. Several committee members say they'd like more details about watch list items. Staff agrees to provide follow up information at future meetings. Vice Chair Newman asks staff to make sure the WebEx access code for future meetings is correct. Staff will confirm access details to be included on future agendas.

## • September 18, 2020 – Regular Meeting

BART staff provides update on search to fill vacant Project Management Institute committee seat. Chairman McGill briefs committee on presentation of RR Annual Report to the BART Board of Directors. McGill says presentation was well received and he supported the approach of having staff deliver a full RR update to the Board before the presentation of the annual report. BART staff says draft outline for the 2021 annual report will be presented at December meeting. Committee member Leah Edwards asks the committee to consider a request from the public who asked that the next report speak to how BART is managing costs compared with other agencies. Staff researching if comparative info is available for the 2021 report. Staff presents updated overview of RR program and suggests committee hear a report on station modernization at a future meeting. Committee agrees.

## • December 18, 2020 – Regular Meeting

Committee unanimously approves maintaining current quarterly schedule of public meetings. Committee reviews draft outline for 2021 RR Annual Report. Committee member Leah Edwards wants to ensure report shows whether bond-funded projects are on-time and delivered in an effective manner. Committee member Daren Gee requests report use term "trackwork" to explain what is meant by replacing "interlockings." Committee member Marian Breitbart requests the report do a better job at explaining in plain language the legal requirements of purchasing and spending bond funds. Committee member Michael Day says he wants to put a greater emphasis on how the COVID pandemic has helped BART work more expeditiously on moving projects forward. Committee member Sonja Stewart says she would like the report to better explain the concept of "Earned Value" to the public in simple terms. Vice Chair Catherine Newman requests committee consider having an appendix, which will allow the public to get greater detail on specific projects. She also would like to see one or two sentences that show the differences between reports. These sentences should highlight the major projects in the current report. Staff recommends putting these sentences in the Committee Chair's welcome letter of the report. Committee hears overall program update. No requests for future agenda items. Chair Michael McGill recommends RR Report subcommittee schedule separate meeting to discuss including an appendix in this year's RR Annual Report. Staff agrees to set up that meeting.

## • March 19, 2021 – Regular Meeting

Committee pays tribute to BART employees retiring as part of District Retirement Incentive Program. Committee members are asked whether they would be open to being reappointed to another term on the committee and all express interest. Committee gets update on plan to appoint replacement for former committee member Michael Day. Staff says process of selecting three nominees is underway with goal for BART Board to make appointment by September. Committee members Sonja Stewart and Daren Gee unanimously appointed to two open seats on RR Annual Report subcommittee. Staff presents initial draft of RR Annual Report and plan for first report subcommittee meeting to occur

in April. Staff says plan is for final draft of RR Annual Report to be ready for full committee in May. Committee receives staff update on Measure RR Program including recently completed track rebuild near Richmond Station.

**Committee Expenditures:** As of this report, the committee has spent \$5500 in Fiscal Year 2021 on the design and production of the RR Annual Report.

You are invited to participate in future Measure RR Bond Oversight Committee meetings. Those meetings are scheduled to happen on the third Fridays of March, June, September, and December.

**The meetings are open to the public via videoconference during the pandemic and will be listed on the BART website at [www.bart.legistar.com/Calendar.aspx](http://www.bart.legistar.com/Calendar.aspx).**

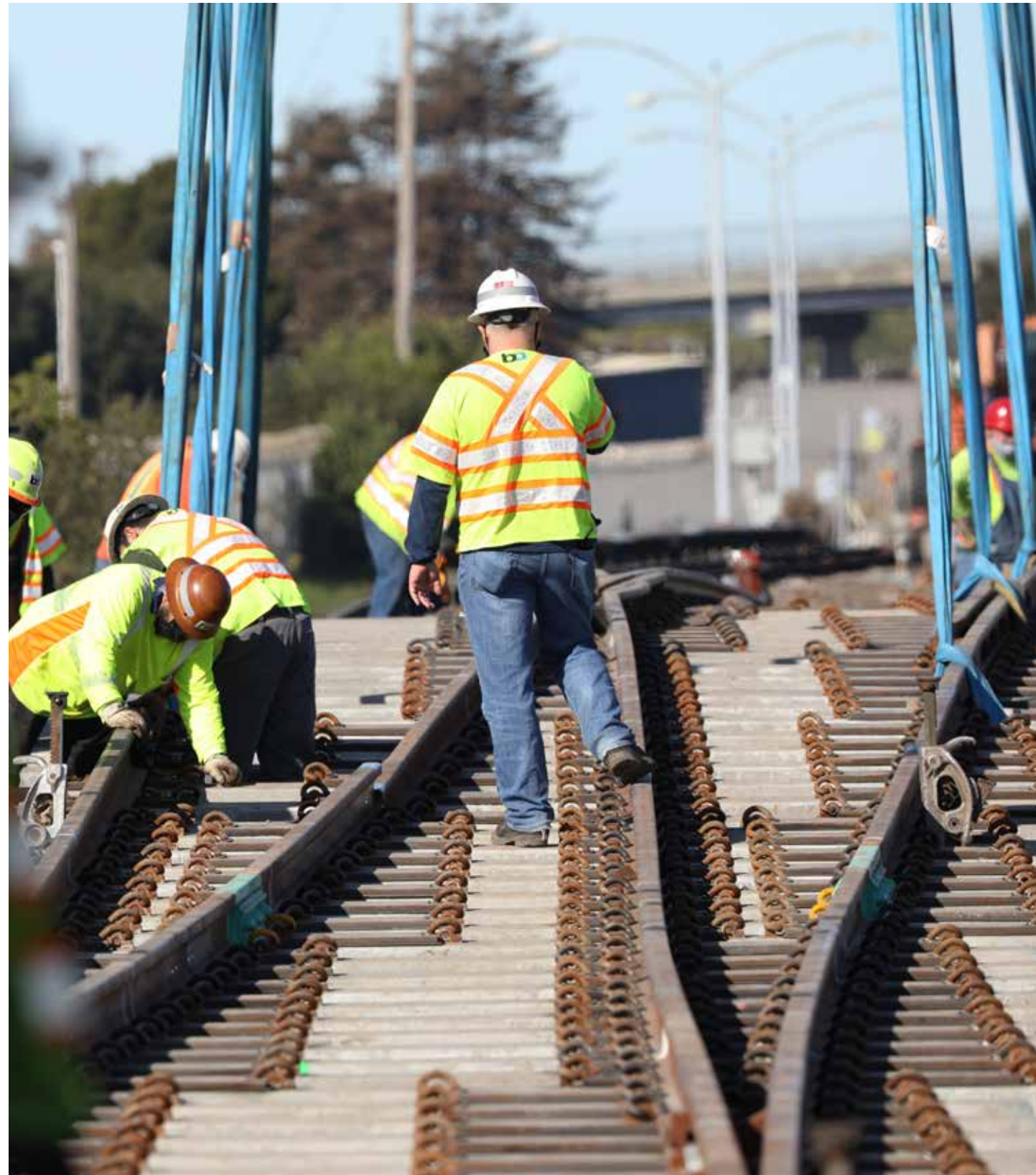
Members of the public will be welcome to attend committee meetings in person once it's deemed safe to do so by health officials. The committee will also be publishing an annual report each year to inform the public of BART's progress and activities.

**The public can view meeting minutes at [www.bart.gov/bondoversight](http://www.bart.gov/bondoversight).**



# Resources to Learn More

This year's RR Annual Report is the first to feature additional resources for anyone interested in background materials pertaining to Measure RR. This includes a series of relevant links to various documents as well as an appendix.



# Helpful Links

Additional information about the Measure RR Rebuilding Program can be found on [bart.gov](http://bart.gov). Here is a list of helpful links if you'd like to learn more about the details of Measure RR.

<p><b>Previous Measure RR Annual Reports published by the Bond Oversight Committee</b></p>	<p><b>2020 Annual Report</b>  <a href="http://www.bart.gov/sites/default/files/docs/Measure%20RR%20Report%202020%20June%20Final.pdf">www.bart.gov/sites/default/files/docs/Measure%20RR%20Report%202020%20June%20Final.pdf</a></p> <p><b>2019 Annual Report</b>  <a href="http://www.bart.gov/sites/default/files/docs/RR%20Report%20July%202019.pdf">www.bart.gov/sites/default/files/docs/RR%20Report%20July%202019.pdf</a></p> <p><b>2018 Annual Report</b>  <a href="http://www.bart.gov/sites/default/files/docs/BART_Measure_RR_AReport_6_27_18_WEB.pdf">www.bart.gov/sites/default/files/docs/BART_Measure_RR_AReport_6_27_18_WEB.pdf</a></p>
<p><b>Measure RR Standing Rules and Original Documents</b></p>	
<p><b>Bond Oversight Committee Standing Rules</b></p>	<p>This document outlines the basics of how the Measure RR Bond Oversight Committee operates including length of committee member terms, how many meetings must occur each year, and rules to safeguard against conflicts of interest.  <a href="http://www.bart.gov/sites/default/files/docs/Bond%20Oversight%20Committee%20Standing%20Rules_Adopted%2012-18-2020%20.pdf">www.bart.gov/sites/default/files/docs/Bond%20Oversight%20Committee%20Standing%20Rules_Adopted%2012-18-2020%20.pdf</a></p>
<p><b>Original Measure RR Bond Resolution</b></p>	<p>This is the document approved unanimously by the BART Board of Directors on June 9, 2016 that lead to Measure RR being placed on the November 2016 ballot in the BART District.  <a href="http://www.bart.gov/sites/default/files/docs/Bond%20resolution.pdf">www.bart.gov/sites/default/files/docs/Bond%20resolution.pdf</a></p>
<p><b>2016 Treasurer's Tax Rate Statement</b></p>	<p>The statement from BART's Treasurer was issued in compliance with the state election code ahead of the November 2016 vote and offers best estimates of the highest tax rate which would be required to be levied to fund the bond issue, the total debt service and more.  <a href="http://www.bart.gov/sites/default/files/docs/2016%20Tax%20Rate%20Statement%20SIGNED.pdf">www.bart.gov/sites/default/files/docs/2016%20Tax%20Rate%20Statement%20SIGNED.pdf</a></p>
<p><b>2016 Measure RR Fact Sheet</b></p>	<p>Includes details put before District voters in advance of the 2016 election including how the bond would work, how much property owners could expect to pay, and a financing schedule for Measure RR.  <a href="http://www.bart.gov/sites/default/files/docs/BART%20%243%205%20Billion%20GO%20Bond%20Measure%20Tax%20Analysis%20%284%25%20AV%20Growth%20Assumption%29%20Summary%20FINAL%20WEBSITE%20POSTING%208%2019%2016.pdf">www.bart.gov/sites/default/files/docs/BART%20%243%205%20Billion%20GO%20Bond%20Measure%20Tax%20Analysis%20%284%25%20AV%20Growth%20Assumption%29%20Summary%20FINAL%20WEBSITE%20POSTING%208%2019%2016.pdf</a></p>
<p><b>Green Bond Background</b></p>	
<p><b>Green Bonds</b></p>	<p>BART provides updated information on its climate-certified green bonds including preliminary offering statements and credit reports at <a href="http://www.bart.gov/greenbonds">www.bart.gov/greenbonds</a>.</p>

# Appendix

Appendix 1: Pages from Fiscal Year 2020 Audited Financial Report that pertains to long term debt and Measure RR. The first page describes the bonds issued to finance Measure RR projects; the second page is a summary of proceeds, uses, and balances; and the final page shows expenditures by project. You can read the entire FY20 Audited Financial Report here:

[www.bart.gov/sites/default/files/docs/FY20%20Audited%20Financial%20Reports.pdf](http://www.bart.gov/sites/default/files/docs/FY20%20Audited%20Financial%20Reports.pdf)

## SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT

Notes to Financial Statements (Continued)

June 30, 2020 and 2019

### Long-Term Debt (Continued)

#### 2017 Measure RR General Obligation Bonds (the 2017A Measure RR GO Bonds)

In June 2017, the District issued the 2017 Series A Measure RR General Obligation Bonds with an aggregate principal amount of \$300,000,000 and a premium of \$35,641,000. The 2017A Measure RR GO Bonds were issued in 2 series, 2017A-1 Measure RR Bonds in the amount of \$271,600,000 and 2017A-2 Measure RR Bonds (Federally Taxable) in the amount of \$28,400,000. The 2017A Measure RR GO Bonds are part of a \$3,500,000,000 authorization approved at an election held on November 8, 2016 (Election of 2016), by over two-thirds of the qualified voters of the District voting on a ballot measure (“Measure RR”) titled “BART Safety, Reliability and Traffic Relief” to keep BART safe; prevent accidents/breakdowns/delays; relieve overcrowding; reduce traffic congestion/pollution; and improve earthquake safety and access for seniors/disabled by replacing and upgrading 90 miles of severely worn tracks, tunnels damaged by water intrusion; 44-year old train control systems; and other acquisition or improvement of real property. The 2017A Measure RR GO Bonds constitute the first issue of general obligation bonds being issued pursuant to the Measure RR authorization. Proceeds from the 2017A Measure RR Bonds will be applied to (1) finance the projects described in Measure RR, and (2) pay a portion of the debt service on the 2017A Measure RR Bonds through February 1, 2018, including the debt service in full of the 2017A-2 Bonds.

The 2017A Measure RR GO Bonds are general obligations of the District, payable from and secured solely by ad valorem taxes upon all property subject to taxation by the District, without limitation as to rate or amount (except for certain personal property which is taxable at limited rates) levied in Alameda and Contra Costa Counties and the City and County of San Francisco. No other revenues of the District are pledged to the payment of the 2017A Measure RR GO Bonds.

At June 30, 2020, the remaining outstanding principal balance of \$262,280,000 related to the 2017A-1 Measure RR GO Bonds consist of \$131,160,000 in serial bonds due from August 1, 2020 to August 1, 2037 with interest ranging from 2% to 5%, a \$58,500,000 term bond with interest of 4% maturing in August 1, 2042, and a \$72,620,000 term bond with interest of 5% maturing in August 1, 2047. The 2017A-1 serial bonds maturing on or after August 1, 2028 are subject to redemption prior to their respective stated maturities, at the option of the District, from any source of available funds, as a whole or in part, on any date on or after August 1, 2027, at the principal amount of such 2017A-1 Measure RR GO Bonds called for redemption, together with interest accrued thereon to the date fixed for redemption, without premium. If less than all of the 2017A-1 Measure RR GO Bonds are called for redemption, the 2017A-1 Measure RR GO Bonds shall be redeemed in inverse order of maturities (or as otherwise directed by the District), and if less than all of the 2017A-1 Measure RR GO Bonds of any given maturity are called for redemption, the portions of 2017A-1 Measure RR GO Bonds of a given maturity shall be determined by lot. The 2017A-1 Term Bonds maturing on August 1, 2042 and August 1, 2047 are subject to mandatory sinking fund redemption beginning August 1, 2038, at a redemption price equal to the principal amount to be redeemed (without premium), together with interest accrued thereon to the date fixed for redemption.

**SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT**  
Notes to Financial Statements (Continued)  
June 30, 2020 and 2019

**Long-Term Debt (Continued)**

**2019 Measure RR General Obligation Bonds (Green Bonds) Series B-1 and B-2 (the 2019B-1 Measure RR GO Bonds and 2019B-2 Measure RR GO Bonds)**

In August 2019, the District issued the 2019 Measure RR General Obligation Bonds Series B-1 with an aggregate principal amount of \$313,205,000 and 2019 Measure RR General Obligation Bonds Series B-2 with an aggregate principal amount of \$46,795,000. The 2019B-1 Measure RR GO Bonds and 2019B-2 Measure RR GO Bonds constitute the second issuance under authorization approved at an election held on November 8, 2016 (Election of 2016), by over two-thirds of the qualified voters of the District voting on a ballot measure ("Measure RR") titled "BART Safety, Reliability and Traffic Relief".

The 2019 Measure RR GO Bonds Series B1 and Series B-2 are general obligations of the District, payable from and secured solely by ad valorem taxes upon all property subject to taxation by the District, without limitation as to rate or amount (except for certain personal property which is taxable at limited rates) levied in Alameda and Contra Costa Counties and the City and County of San Francisco. No other revenues of the District are pledged for debt service of these bonds. At June 30, 2020, the full principal balance of \$46,795,000 pertaining to the 2019B-2 Measure RR GO Bonds were fully paid. The outstanding principal balance of \$313,205,000 related to the 2019B-1 Measure RR GO Bonds consist of \$165,375,000 in serial bonds due from August 1, 2020 to August 1, 2039 with interest ranging from 3% to 5%, a term bond with principal balance of \$ 37,750,000 due on August 1, 2044 with 4% interest, and a term bond with principal balance of \$110,080,000 due on August 1, 2049, with 3% interest.

After the issuance of the 2019 Measure RR GO Bonds, Series B-1 and Series B-2, the remaining Measure RR General Obligation Bonds that can be issued by the District as authorized under Measure RR is \$2,840,000,000.

Measure RR proceeds, uses and balances are listed below (dollar amounts in thousands):

2017 RR GO Bond Series A-1 and A-2 proceeds	\$ 300,000
2019 RR GO Bond Series B-1 and B-2 proceeds	360,000
Total bonds proceeds as of June 30, 2020	<u>660,000</u>
Project fund expenditures:	
Fiscal year 2017	\$ 17,892
Fiscal year 2018	87,435
Fiscal year 2019	229,155
Fiscal year 2020	<u>309,031</u>
	<u>643,513</u> *
Remaining to be applied to subsequent bond issue - June 30, 2020	<u>\$ 16,487</u> **

\* Includes accrual of \$42,188,000.

\*\* The second tranche of Measure RR GO Bonds amounting to \$360,000,000 was issued in August 2019 (2019 Series B).

**SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT**  
Notes to Financial Statements (Continued)  
June 30, 2020 and 2019

**6. Long-Term Debt (Continued)**

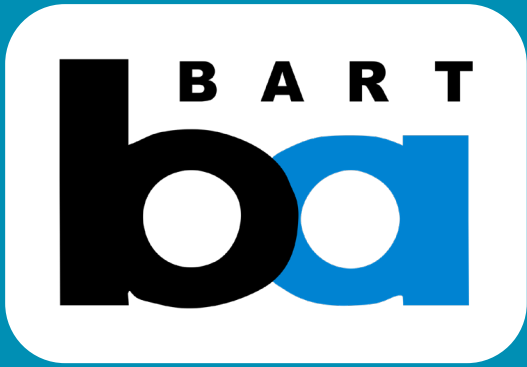
The following are the major projects and related expenditures funded by proceeds from Measure RR GO Bonds issued through June 30, 2020 (dollar amounts in thousands):

Project	Description	Cumulative Expenditures through June 30, 2020	
15CQ002	Rails, Ties, Fasteners Phase 3	\$	106,730
15EKRR1	TP-Switch Stations & Gap Break		53,331
15EJRR1	34.5 KV AC Cable Replacement		49,544
15EJ450	M-Line 34.5 KV Replace Ph.II		46,092
09EK300	Emergency Generator for TBT		27,298
15CQ018	Rail Relay		25,281
15TC002	Renewal of Tunnels & Structures		22,027
49GH000	Train Control Modernization - CENGR		19,602
15CQ005	C35 Interlocking		18,031
15LK002	San Francisco Escalator Replacement		13,512
09AF002	Replace Cross Pass Doors TBT Control		11,491
15CQ006	C25 Interlocking		10,176
15EK350	Substation Replace/Install Grp II		9,115
54RR004	M&E Line Rail Equipment		8,866
15CQ004	Track C55 Interlocking		8,843
49GH002	TCMP- Enabling Work		8,774
01RQ100	HMC Phase 2 Preliminary Engineering		8,577
15ELRR1	MPR Install & Rectifier Rehabilitation		8,516
09JA000	2nd Trans Bay Tube Study		8,186
15CQ001	Rails, Ties, Fasteners 2		7,734
15ELRR3	Third Rail Replacement Phase 3		6,140
15CQ016	Direct Fixation Pads		6,030
15EK600	Substation for Core Capacity		5,644
15CQ008	K-Line Interlocks K23, K25, K33C15		5,554
96DARR1	FTA Core Capacity (Measure RR)		5,436
15EJRRK	K-Line 34.5kV AC Cable Replacement		5,315
05HA002	El Cerrito del Norte Station Modernization		5,297
15CQ017	Rail Re-profiling		4,552
15EJ400	Traction Power Cables- M Line		4,323
15TC011	Platform Edge Structure Rehabilitation		4,114
15IIRR1	Stations, Emergency Lighting		4,043
54RR250	Fire Services Yards- OCY		3,893
15AARR1	Tunnel LED Lighting Upgrade		3,888
07GJ000	MacArthur Transit Improvements		3,845
15ST002	A Line Operability Feasibility Study		3,810
79NKRR1	Train Control Room UPS System		3,804
11IA002	Civic Center Platform Stairs		3,756
15CQ011	A65/A75 Interlocking - Replacement		3,721
15EJRRC	C-Line 34.5kV AC Cable Replacement		3,625
15NU002	Accessibility Improvement Program		3,402
54RR410	Coverboard Enhancement C and L Lines		2,866
15ELRR2	34.5kV Blocking Scheme Systemwide		2,557
15EIRR1	CWS Bulk Supply Transformer		2,109
04SF190	eBART Additional Parking Lot		2,077
	Others		71,986
	<b>Total</b>	<b>\$</b>	<b><u>643,513</u></b>

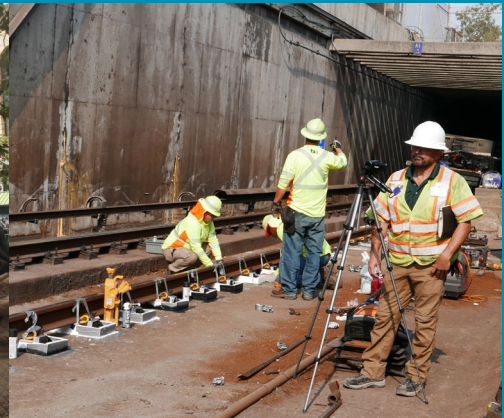
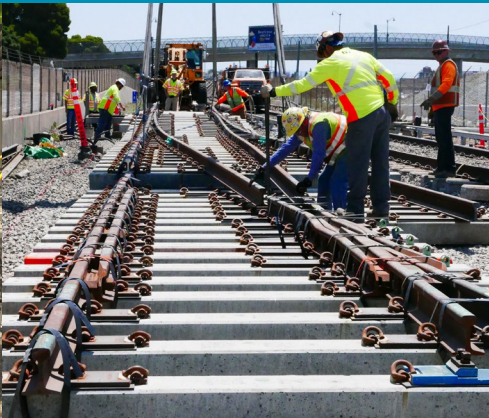
Total Measure RR project costs reimbursed from bond proceeds since inception through June 30, 2020 amounted to \$557,038,000.



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# BART Safety, Reliability, and Traffic Relief Program (Measure RR) Update



Bond Oversight Committee  
June 18, 2021



# Bond Oversight Committee Duties & Responsibilities

- Provide diligent, independent and public oversight over the expenditure of funds from the sale of District general obligation bonds
- Assess how bond proceeds are invested to ensure that all spending is authorized by the ballot measure
- Assess whether projects funded by bond proceeds are completed in a timely, cost-effective and quality manner consistent with the best interest of BART riders and District residents
- Publish an annual report that includes a detailed account of the Committee's activities including its expenditures





# Table of Contents

<b>Topic:</b>	<b>Page No.</b>
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• RR Program Small Business & Outreach	5
• RR Program Hiring	8
• Work Progress Since Last Meeting	10
• Individual Program Milestones	16
• Budget and Schedule Status	25
• Next Steps	33



# Executive Summary

- Through April 2021, \$912.2M of the Measure RR funds have been invested to complete 28% of the work.
- Successes
  - Interlocking projects meeting performance metrics
    - A75 (near Hayward Yard) in progress
    - R65 (near Richmond Station) is completed
  - Core Capacity West Bay Substations construction in progress
  - Market Street Escalator – First 3 escalators completed
  - El Cerrito Del Norte Station Modernization – Construction completed and fully open to public
  - New Transbay Rail Crossing Link21 – Awarded 4 agreements
- Challenges
  - COVID-19

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	<b>TOTAL # Projects</b>
6	46 (+2)	13 (-4)	61 (+1)	25 (+5)	151 (+4)

+ (Projects added in the phase)

- (Projects no longer in the phase)



# RR Program Small Business & Outreach



# RR Program Update – Small Business

Program	Total RR Commitment	Total RR SB Commitment	SB Commitment %	# of SB Contracts	Total RR Payments on RR Contracts	RR Payments to SBs	SB Payment %
Renew Track	\$121,621,782	\$32,630,821	27%	122	\$77,088,441	\$16,137,649	21%
Renew Power	\$168,645,228	\$82,710,753	49%	168	\$118,820,395	\$75,804,082	64%
Repair Tunnels & Structures	\$138,168,000	\$28,990,230	21%	129	\$77,805,449	\$11,460,535	15%
Renew Mechanical	\$31,941,361	\$10,862,488	34%	65	\$18,672,232	\$7,313,157	39%
Replace Train Control/Increase Capacity	\$27,102,263	\$5,546,080	20%	63	\$13,232,402	\$1,521,867	12%
Renew Stations	\$145,026,099	\$27,105,591	19%	93	\$24,895,823	\$6,828,185	27%
Expand Safe Access to Stations	\$16,177,188	\$4,280,340	26%	94	\$9,933,512	\$3,473,581	35%
Design/Engineer to Relieve Crowding	\$77,174,539	\$16,430,023	21%	78	\$29,397,189	\$9,283,369	32%
<b>Total</b>	<b>\$ 725,856,459</b>	<b>\$208,556,326</b>	<b>29%</b>	<b>811</b>	<b>\$369,845,443</b>	<b>\$131,822,425</b>	<b>36%</b>

Notes: All amounts are based on RR fund percent only. Amounts are updated to May 26, 2021. Includes formal contracts only; does not include informal purchases or work performed by BART's own forces. SB totals include DBEs, MSBEs, SBs, and LSBs. Sources: RR commitments are based on RR Requisitions report, Procurement Sealed Bids Report and PeopleSoft Work Plans application. RR% for each project is based on Financial Analysts' report, RR Funds / Total Project Budget. Payments based on PeopleSoft and B2GNow.



# RR Program Update – Outreach



## • Recently Completed Events

- BART SB Outreach – Learn About Upcoming Stations Opportunities
- BART SB Outreach - Learn About BART’s Procurement Process
- BOC – How to do Business with Transit Agencies
- BART SB Outreach - BART Certifications Event



## • Upcoming Events

- BART SB Outreach – Learn About Upcoming HMC Opportunities
- BART SB Outreach – Learn About BART’s Procurement Process



# RR Program Hiring



# Recruitment

Bond Hiring Summary - To Date	Number of Positions
Vacant	45
Posted – Actively Recruiting	5
Interview	3

## Recruiting Classifications

- Operations Supervisor Liaison
- Special Project Manager Track & Structures
- Senior Admin. Analyst

## Interview

- Principal Electrical Engineer
- Sr. Civil Engineer
- Structures Workers



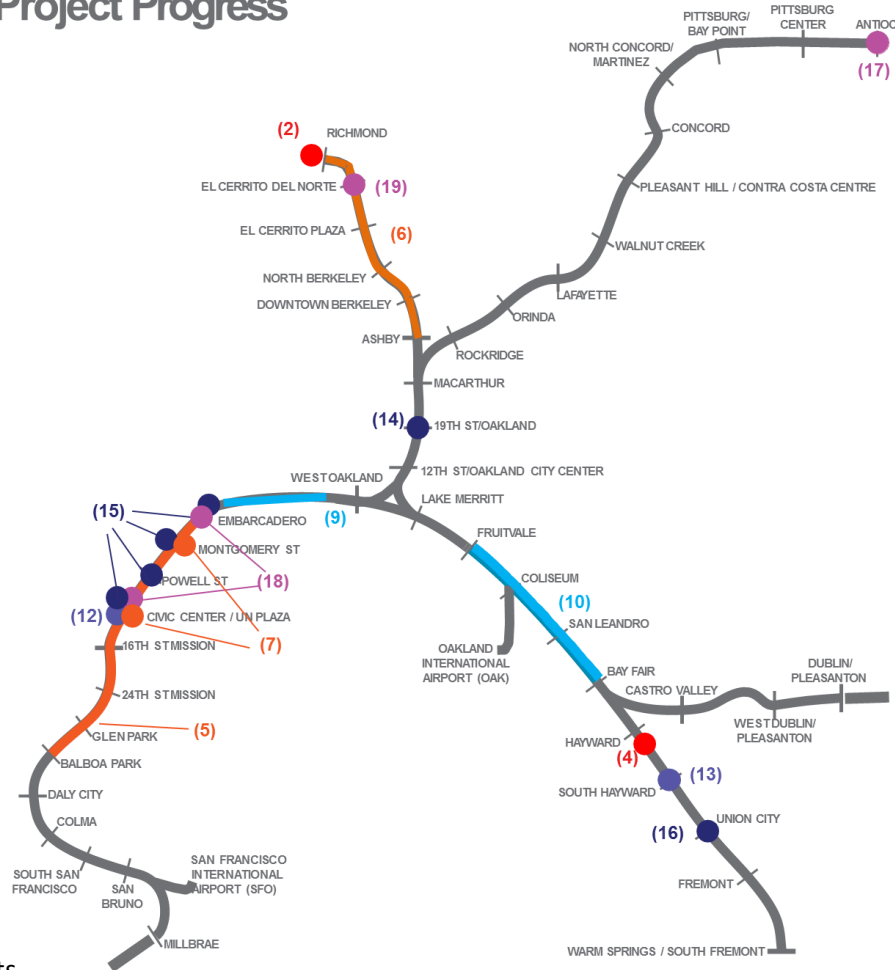
# Work Progress Since Last Meeting





# Examples of Active RR Projects in February 2021 – April 2021

## Measure RR - Project Progress



### Renew Track

- 1 Replace Direct Fixation Pads (Systemwide Not Mapped) – Ongoing Construction
- 2 R65 Track Interlocking Replacement – Ongoing Construction
- 3 Rail Relay – Ongoing Construction - (Systemwide Not Mapped)
- 4 A65/A75 Track Interlocking Replacement – Ongoing Construction

### Renew Power Infrastructure

- 5 M-Line 34.5kV Cable Replacement - Ongoing Construction
- 6 R-Line 34.5kV Cable Replacement – Ongoing Construction\*
- 7 Substation for Core Capacity – Ongoing Construction\*

### Renew Tunnel & Structures

- 8 Substation Walls (Systemwide Not Mapped) – Substantially Complete\*
- 9 Earthquake Safety Program – Transbay Tube Retrofit – Ongoing Construction
- 10 Aerial Fall Protection A line North – Ongoing Construction

### Renew Mechanical

- 11 Facilities HVAC Equipment Replacement System Wide Phase 1 - Ongoing Construction (Not Mapped)

### Design/Engineer to Relieve Crowding

- 12 Civic Center Scissor Stairs – Ongoing Construction
- 13 Hayward Maintenance Complex Phase 2 - Civil/Grading – Award\*

### Renew Stations

- 14 19th Street Station Modernization – Ongoing Construction
- 15 Market Street Canopies and Escalator – Ongoing Construction
- 16 Union City Station Modernization - Ongoing Construction

### Expand Safe Access

- 17 eBART Antioch Parking Lot Contract – Ongoing Construction
- 18 Bicycle Stair Channels – Ongoing Construction
- 19 El Cerrito Del Norte – Phase 1 Opening and 2 Opening\*

### Replace Train Control/Increase Capacity

- 20 Enabling Works Contract for Power Supply Cabinets & Switch Machine/Train Control Power Cables (Systemwide Not Mapped) – Advertised\*

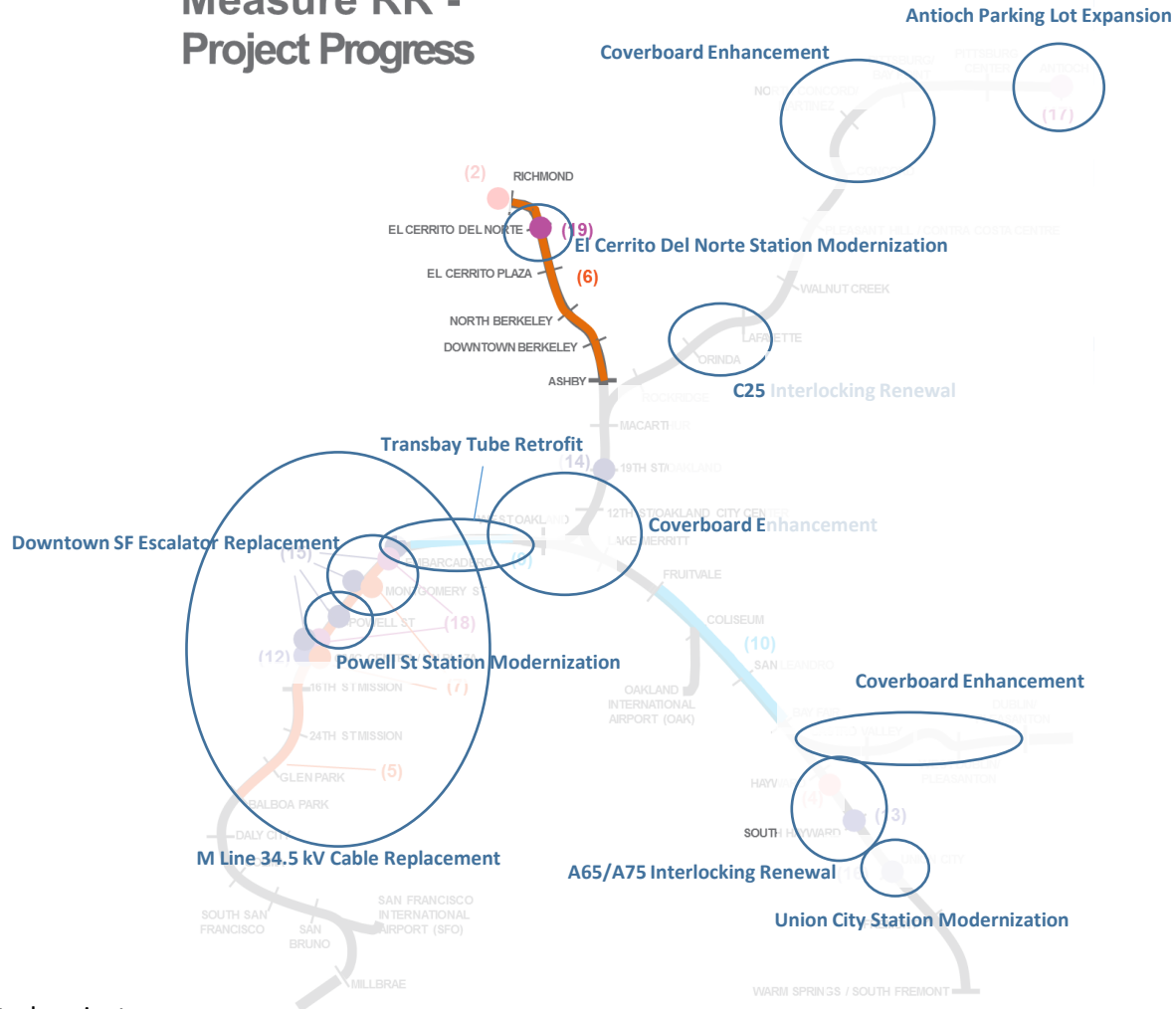
\*Updated projects

Projects with Accelerated work due to COVID-19 service reduction



# Updated Projects

## Measure RR - Project Progress



\* Circles indicate accelerated projects



## Capital Project Acceleration in FY21 and FY22

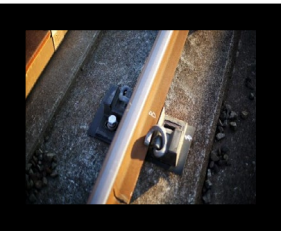
Project	Estimated Reduction on Cost and Time Impact	
	\$	Schedule
Transbay Tube Retrofit	4,800,000	40 days
M Line 34.5 kV Cable Replacement	3,000,000	At least 24 single tracking Sundays eliminated
Direct Fixation Pad Replacement Systemwide	2,000,000	1.5 years ahead of schedule
El Cerrito Del Norte Station Modernization	1,300,000	87 days
Rail Reprofilng Systemwide	1,200,000	Reduced 150 shifts
C25 Interlocking Renewal	750,000	Reduced 1 weekend
A65/A75 Interlocking Renewal	750,000	Reduced 1 weekend
Powell St Station Modernization	264,000	22 days
Union City Station Modernization	200,000	Reduced 60 shifts
Coverboard Enhancement	180,000	Saved 40 Days Construction
Downtown SF Escalator Replacement	120,000	20 days
<b>TOTAL ESTIMATED COST IMPACT REDUCTION</b>	<b>14,564,000</b>	



# Capital Project Acceleration in FY21 and FY22



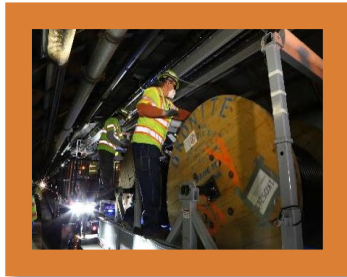
**Rail Reprofilng Systemwide**



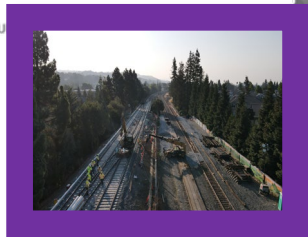
**Direct Fixation Pad Replacement Systemwide**



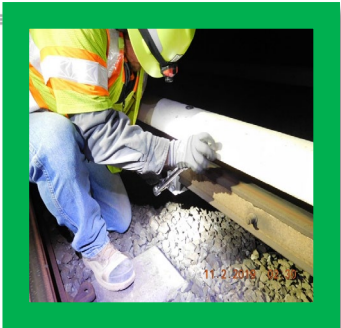
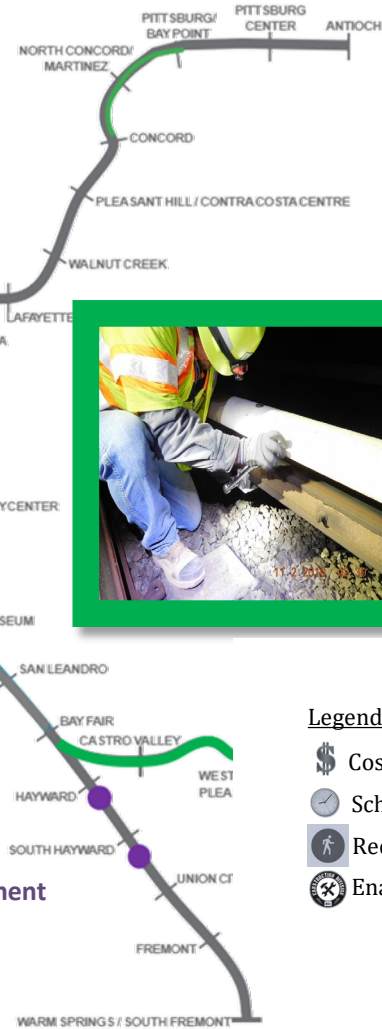
**C25 Interlocking Replacement**



**M Line 34.5kV Cable Replacement**



**A65/A75 Interlocking Replacement**



**Coverboard Enhancement C Line, L Line, WYE**



**Legend:**

- Cost Impact
- Schedule Impact
- Reduce Impact to Patrons
- Enables Other Work

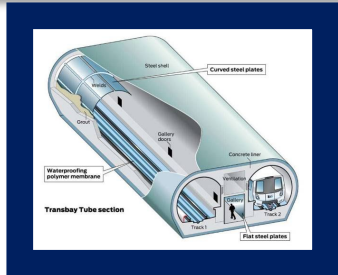


# Capital Project Acceleration in FY21 and FY22

## El Cerrito Del Norte



## Transbay Tube Retrofit



## Downtown SF Escalator Replacement



## Powell St. Station Modernization



## Union City Station Modernization



### Legend:

- Cost Impact
- Schedule Impact
- Reduce Impact to Patrons
- Enables Other Work



# Individual Program Milestones



# Renew Track

## STATUS & MILESTONES

EXPENDED Thru 04/2021: \$261.2

FORECAST Thru 9/2023: \$382

TOTAL PROGRAM VALUE: \$625

PERIOD CASHFLOW: \$18.1

### STATUS – Renew Track

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
1	3	2	8	6	20

### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>Completion of Construction Shutdowns for R65 Interlocking Replacement (near Richmond Station)</li> <li>Issue for Bid A77 Interlocking Replacement Special Trackwork (Near Hayward Yard)</li> </ul>	<ul style="list-style-type: none"> <li>Completion of Construction Shutdowns for A75 Interlocking Replacement (near Hayward Yard)</li> <li>Completion of Design for Friction Modification Study</li> <li>Completion of Construction for R65 Interlocking Replacement (near Richmond Station)</li> </ul>	<ul style="list-style-type: none"> <li>Contract Award for A77 Interlocking Replacement Special Trackwork</li> <li>Issue for Bid Richmond Yard Track Rehabilitation Special Trackwork</li> </ul>	<ul style="list-style-type: none"> <li>Begin Construction for A77 Interlocking Replacement</li> <li>Receive Rail Shipment #4 for Rail Replacement</li> <li>Issue for Bid K Line Interlocking Replacement Special Trackwork (near MacArthur Station)</li> </ul>

### Watchlist:

- Material acquisition (i.e., ballast, concrete, sand, etc.) for A77 and Richmond Yard Track Replacement

*Italic:* Modified milestones from previous report.



# Renew Power STATUS & MILESTONES

EXPENDED Thru 04/2021: \$342.6

FORECAST Thru 9/2023: \$573

TOTAL PROGRAM VALUE: \$1,225

PERIOD CASHFLOW: \$41.5

## STATUS – Renew Power Infrastructure

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
0	7	3	17	2	29

### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>Contract Award for material purchase of fiber optic cables and cable troughs for the C, K and R Lines 34.5kV Cable Replacement</li> <li>Begin Construction for Core Capacity Substation at Civic Center Station</li> </ul>	<ul style="list-style-type: none"> <li>Contract Award for R Line 34.5kV Cable Replacement</li> <li>Begin Construction for Core Capacity Substation at Montgomery Station</li> </ul>	<ul style="list-style-type: none"> <li>Issue for Bid Walnut Creek Traction Power Substation Replacement</li> <li>Contract Award for Procurement of Portable Traction Power Substations</li> <li>Completion of Design for Station Fire Alarm Replacement Phase 3</li> </ul>	<ul style="list-style-type: none"> <li>Issue for Bid Station Fire Alarm Replacement Phase 3</li> <li>Completion of Design for Station Fire Alarm Replacement Phase 4</li> </ul>

### Watchlist:

- Bid Package Development for Walnut Creek Traction Power Substation Replacement
- Design Package Revisions for Station Fire Alarm Replacement Phase 3

*Italic:* Modified milestones from previous report.





# Tunnels & Structures

## STATUS & MILESTONES

EXPENDED Thru 04/2021: \$115.1

FORECAST Thru 9/2023: \$136

TOTAL PROGRAM VALUE: \$570

PERIOD CASHFLOW: \$29.7

### STATUS – Repair Tunnels & Structures

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
1	12	0	8	5	26

### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>Completion of Construction for Substation Walls</li> </ul>	<ul style="list-style-type: none"> <li>Begin Construction for Richmond Yard Fence Rehabilitation</li> <li><i>Completion of Design for Water Intrusion at Train Control Room</i></li> </ul>	<ul style="list-style-type: none"> <li>Completion of Design for Water Intrusion at Track and Platform Joint at C and R Lines</li> <li>Completion of Design for Water Intrusion at Track and Platform Joint at A Line</li> <li><i>Completion of Construction for Safety Barriers Phase 3</i></li> </ul>	<ul style="list-style-type: none"> <li>Completion of Design for Water Intrusion at Train Control Rooms (Package 2 and 3)</li> <li>Begin Construction for Water Intrusion at Train Control Room</li> <li>Completion of Design for Replace East Bay Street Grates</li> <li>Completion of Design for Slope Stabilization Systemwide</li> <li>Issue for Bid for Renew Catwalks Material Procurement</li> </ul>

### Watchlist:

- Material procurement for Prevent Water Intrusion in Train Control Rooms
- New contractor onboarding for Richmond Yard Fence Replacement

*Italic:* Modified milestones from previous report.



# Renew Mechanical

## STATUS & MILESTONES

EXPENDED Thru 04/2021: \$53.5

FORECAST Thru 9/2023: \$77

TOTAL PROGRAM VALUE: \$135

PERIOD CASHFLOW: \$6.3

### STATUS – Renew Mechanical

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
1	6	4	10	4	25

### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>• Completion of Construction for Coverboard Enhancement</li> <li>• Completion of Construction for Access Ladders</li> <li>• Completion of Construction for Vacuum System at Oakland Shop</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Completion of Construction for Replacement of Fire Hoses and Cabinets</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Issue for Bid Replace Hydraulic Lift Cylinders at Hayward Shop and Richmond Shop</i></li> <li>• Contract Award of Design for Concord Yard Turntable Replacement</li> <li>• Contract Award of Concord Yard Wheel Truing Machine</li> <li>• Completion of Construction for Rotoclones Replacement</li> <li>• Completion of Construction for HVAC Replacements Systemwide</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Issue for Bid Concord Yard Wheel Truing Facility Construction</i></li> </ul>

### Watchlist:

- Bid prices for Hayward Yard Fire Services

*Italic: Modified milestones from previous report.*



# Replace Train Control

## STATUS & MILESTONES

EXPENDED Thru 04/2021: \$35.7

FORECAST Thru 9/2023: \$89

TOTAL PROGRAM VALUE: \$400

PERIOD CASHFLOW: \$3.6

### STATUS – Replace Train Control / Increase Capacity

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
0	0	2	4	0	6

#### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>• Issue for Bid Power Supply Cabinets &amp; Switch Machine/Train Control Cables</li> <li>• Issued CBTC Change Notice NTP/NTE for Preliminary and Final Design review for the D-Cars</li> <li>• CBTC Baseline Schedule submitted and approved</li> <li>• CBTC to start Field Survey Wayside</li> <li>• Issue Cost Proposal Change Notice for Yard Interlock Modifications</li> </ul>	<ul style="list-style-type: none"> <li>• Complete CBTC Conceptual Design Review</li> <li>• Bid Opening for Power Supply Cabinets &amp; Switch Machine/Train Control Cables</li> <li>• Finalize Demo Lidar Survey Data on S-Line</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Contract Award for Power Supply Cabinets &amp; Switch Machine/Train Control Cables</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Complete CBTC Preliminary Design</i></li> <li>• <i>NTP for Power Supply Cabinets &amp; Switch Machine/Train Control Cables</i></li> </ul>

#### Watchlist:

- None

*Italic: Modified milestones from previous report.*



# Renew Stations

## STATUS & MILESTONES

EXPENDED Thru 04/2021: \$37.7  
 FORECAST Thru 9/2023: \$125  
 TOTAL PROGRAM VALUE: \$210  
 PERIOD CASHFLOW: \$7.2

### STATUS – Renew Stations

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
0	2	0	6	1	9

### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>• Began installations of Market St. Station Entry Canopies Systems infrastructure within Montgomery Station</li> <li>• Began Lighting Improvements for Powell St. Station Modernization</li> <li>• Open El Cerrito Del Norte Station Modernization Phase 1</li> <li>• Completion and acceptance for Union City Station Modernization Southeast Escalator and Vestibule Expansion</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Completion of Construction for 1<sup>st</sup> Group of Market St. Escalators</i></li> <li>• <i>Complete Market St. Entry Canopies systems infrastructure within Montgomery St. Station</i></li> <li>• Completion of Construction of El Cerrito Del Norte – fully open to public</li> <li>• <i>Substantial Completion of Construction for Powell St. Station Modernization Sector 6 New Offices</i></li> </ul>	<ul style="list-style-type: none"> <li>• Completion of Construction for Union City Station Modernization</li> <li>• Completion of Construction for Public Restrooms as part of 19<sup>th</sup> St. Modernization</li> </ul>	<ul style="list-style-type: none"> <li>• Completion of Construction for 2<sup>nd</sup> Group of Market St. Escalators</li> <li>• Complete Market St. Entry Canopies Systems Infrastructure within Powell St. Station</li> </ul>

### Watchlist:

- 19<sup>th</sup> St. Station Modernization

*Italic: Modified milestones from previous report.*



# Station Access STATUS & MILESTONES

EXPENDED Thru 04/2021: \$26.4

FORECAST Thru 9/2023: \$37

TOTAL PROGRAM VALUE: \$135

PERIOD CASHFLOW: \$3.5

## STATUS – Expand Safe Access to Stations

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
1	13	1	7	6	28

### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>• Begin Construction for Bicycle Stair Channels at Seven Stations</li> <li>• Completion of Construction and opening for El Cerrito Del Norte Station Modernization - Phase 1</li> <li>• <i>Completed Preliminary Engineering for 19<sup>th</sup> Street/Oakland Bike Station</i></li> </ul>	<ul style="list-style-type: none"> <li>• Completion of Construction for eBART Antioch Parking Lot</li> <li>• Completion of Construction of El Cerrito Del Norte – fully open to public</li> <li>• <i>SFMTA to Issue for Bid Civic Center Access Improvements (as part of Better Market Street Project)</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Completion of Construction for Warm Springs West Pedestrian Bridge and Plaza Project</i></li> <li>• <i>Begin Construction of North Berkeley Active Access</i></li> <li>• <i>Issue for Bid Accessibility Improvement (Phase 1)</i></li> <li>• <i>Completion of Construction for the Parking Lot Reconfiguration at Dublin/Pleasanton</i></li> </ul>	<ul style="list-style-type: none"> <li>• SFMTA to begin construction of Civic Center Access Improvements (as part of Better Market Street Project)</li> </ul>

### Watchlist:

- None



# Relieve Crowding

## STATUS & MILESTONES

EXPENDED Thru 04/2021: \$40.0

FORECAST Thru 9/2023: \$76

TOTAL PROGRAM VALUE: \$200

PERIOD CASHFLOW: \$0.5

### STATUS – Design / Engineer to Relieve Crowding

# Projects in Planning	# Projects in Design	# Projects in Bid/Award	# Projects in Construction	# Projects Completed	TOTAL # Projects
2	3	1	1	1	8

#### MILESTONES

Completed (Feb 2021 – Apr 2021)	Q4 (May 2021 – Jun 2021)	Q1 (Jul 2021 – Sep 2021)	Q2 (Oct 2021 – Dec 2021)
<ul style="list-style-type: none"> <li>NTP for Hayward Maintenance Complex Phase 2: Trackwork Procurement</li> <li>Evaluated Proposals for the NTRC (Link21) Program</li> </ul>	<ul style="list-style-type: none"> <li>Contract Award for NTRC (Link21) Program</li> <li>Begin Steel Erection for Civic Center Station Scissor Stairs</li> <li><i>Completion of Design for Millbrae Tail Tracks Extension</i></li> <li><i>NTP for Hayward Maintenance Complex Phase 2: Civil/Grading</i></li> </ul>	<ul style="list-style-type: none"> <li><i>First Round of Public Outreach for Link21 (NTRC) Program</i></li> </ul>	<ul style="list-style-type: none"> <li>Completion of Construction for Civic Center Station Scissor Stairs</li> <li>Complete 60% submittal for re-design of Hayward Maintenance Complex Phase 2: East Storage Yard</li> </ul>

#### Watchlist:

- Millbrae Tail Tracks Extension Contract Notification

*Italic: Modified milestones from previous report.*



# Budget and Schedule Status



# Measure RR Cashflow (\$ Millions) – Mid-Term & Long-Term Outlook

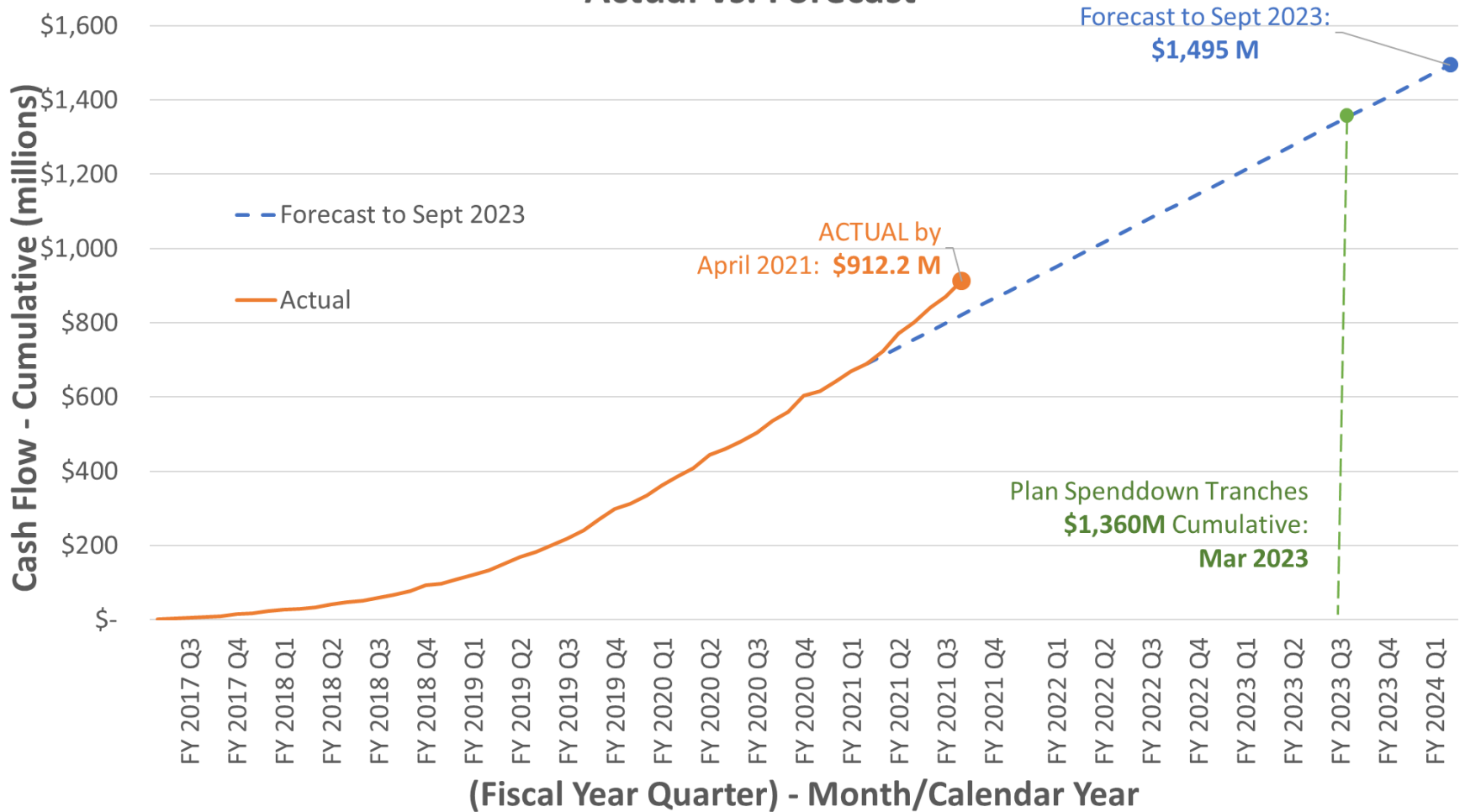
Program	Expended (thru January 2021)	Expended (thru April 2021)	Period Cashflow (February 2021 – April 2021)	% Expended out of Total Bond Investment	Forecast Expenditures		
					SHORT- TERM (thru September 2023)	MID-TERM (thru 2025)	LONG-TERM (thru End of Bond)
Renew Track	\$243.1	\$261.2	\$18.1	42%	\$382	\$400	\$625
Renew Power Infrastructure	\$301.1	\$342.6	\$41.5	28%	\$573	\$608	\$1,225
Repair Tunnels & Structures	\$85.3	\$115.1	\$29.7	20%	\$136	\$268	\$570
Renew Mechanical	\$47.2	\$53.5	\$6.3	40%	\$77	\$65	\$135
Replace Train Control/Increase Capacity	\$32.1	\$35.7	\$3.6	9%	\$89	\$286	\$400
Renew Stations	\$30.5	\$37.7	\$7.2	18%	\$125	\$148	\$210
Expand Safe Access to Stations	\$22.9	\$26.4	\$3.5	20%	\$37	\$86	\$135
Design/Engineer to Relieve Crowding	\$39.5	\$40.0	\$0.5	20%	\$76	\$69	\$200
<b>Total</b>	<b>\$801.7</b>	<b>\$912.2</b>	<b>\$110.4</b>	<b>26%</b>	<b>\$1,495</b>	<b>\$1,930</b>	<b>\$3,500</b>





# RR Overall Program Budget Progress

## BART Measure RR Program Spending Actual vs. Forecast





# Earned Value Rollup by Program

RR Program	Total RR Budget	Physical % Complete	Planned Value	Earned Value	RR Accrued to Date	CPI	SPI
Renew Track	\$625	49%	\$298.41	\$304.38	\$304.00	1.00	1.02
Renew Power	\$1,225	32%	\$480.93	\$389.55	\$418.87	0.93	0.81
Repair Tunnels and Structures	\$549	14%	\$103.86	\$76.86	\$82.65	0.93	0.74
Renew Mechanical	\$156	35%	\$65.60	\$54.44	\$55.56	0.98	0.83
Replace Train Control/ Increase Capacity	\$400	10%	\$40.24	\$38.66	\$35.70	1.08	0.96
Renew Stations	\$210	21%	\$49.46	\$43.65	\$39.73	1.10	0.88
Expand Safe Access to Stations	\$135	21%	\$40.26	\$28.65	\$29.64	0.97	0.71
Design/Engineer to Relieve Crowding	\$200	24%	\$56.94	\$48.14	\$42.17	1.14	0.85
<b>Total</b>	<b>\$3,500</b>	<b>28%</b>	<b>\$1,135.70</b>	<b>\$984.33</b>	<b>\$1,008.32</b>	<b>0.98</b>	<b>0.87</b>



# Track Program Drill Down

Project	Count
Number of Projects (>25% Spent)	14
CPI <0.9 or >1.1	6
SPI <0.9 or >1.1	2
Number of Risk Register Updates Performed in Previous Period	6
Number of Project Quality Reviews Performed in Previous Period	22

Project	Physical % Complete	CPI	SPI	Comments
C25 Interlocking Replacement	99%	1.17	0.99	Realized savings during construction.
R65 Mainline Interlocking	96%	1.36	0.99	Realized savings during construction.
Replace Direct Fixation Pads	77%	1.11	2.18	More than 2,000 pads installed since last report. Continuing to benefit from extended blanket hours due to COVID-19 response
Rail Replacement	53%	0.85	0.91	Expending more than anticipated and expect to recover over project duration. Schedule delay is result of rail delivery. Installation is on schedule.
Rail Reprofilng	49%	1.31	1.34	Benefitting from extended blanket hours due to COVID-19.
Switch Replacement	30%	0.89	1.08	Material cost exceeded plan. 24 switch points installed. Benefitting from extended blanket hours due to COVID-19. Expected to finish on budget.



# Power Program Drill Down

Project	Count
Number of Projects (>25% Spent)	15
CPI <0.9 or >1.1	3
SPI <0.9 or >1.1	6
Number of Risk Register Updates Performed in Previous Period	4
Number of Project Quality Reviews Performed in Previous Period	4

Project	Physical % Complete	CPI	SPI	Comments
Replace Transbay Tube Emergency Generator	79%	1.15	1.11	Benefitting from application of lessons learned during construction.
M-Line 34.5 kV AC Cable Replacement	71%	1.06	1.19	4.5 miles of cable energized. Benefitting from extended blanket hours due to COVID-19.
Train Control Room UPS Replacement	60%	1.57	0.79	Strategic resequencing of work to support R Line Cable Replacement.
San Leandro and Transbay Tube East Substation Replacements	45%	0.96	0.84	San Leandro substation commissioning completed behind schedule. Accelerating portable substation work to recover schedule. Expected to finish on schedule.
MPR Install & Rectifier Rehab	42%	1.19	0.83	Sharing resources to reduce cost.
Cast Coil Transformer Replacement	29%	0.90	0.48	Rejected all bids. Strategic resequencing of work. No impact to program.



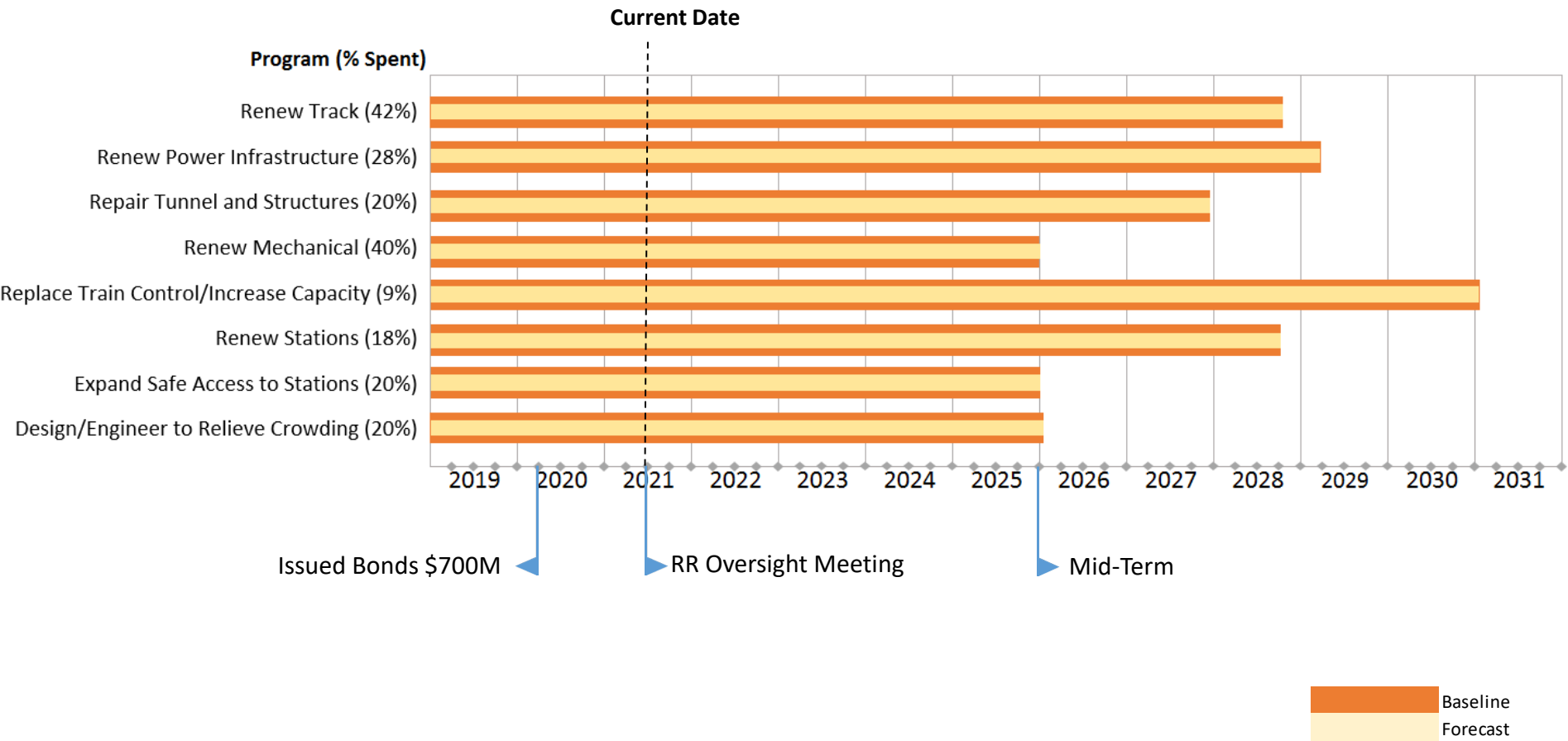
# Mechanical Program Drill Down

Project	Count
Number of Projects (>25% Spent)	18
CPI <0.9 or >1.1	4
SPI <0.9 or >1.1	6
Number of Risk Register Updates Performed in Previous Period	2
Number of Project Quality Reviews Performed in Previous Period	6

Project	Physical % Complete	CPI	SPI	Comments
Install Access Ladders	99%	0.99	1.18	All ladders installed. Benefitting from extended blanket hours due to COVID-19 response.
Replace Vacuum Systems	98%	0.88	0.99	Additional labor required to support contract
Richmond Yard Fire Services	91%	1.14	1.57	Benefitting from service reduction due to COVID-19 response
Replace Fire Hoses and Piping	83%	2.67	1.40	Self performing to reduce cost. Benefitting from reassignment of labor resources due to COVID-19 response.
Rotoclones Replacement (Wet Dust Collectors)	78%	1.00	0.78	Sites are being worked in parallel to recover project schedule.
Facilities HVAC Equipment Replacement Systemwide	59%	0.98	0.63	Managing differing site condition. Change order in progress. Schedule update under review.
Replace Backflow Preventers	39%	1.13	0.67	No bids received. Work self performed at two locations. Five locations to be complete by service contract.



# Program Level Schedule Update





## Next Steps

- Continue interlocking shutdowns at A75
- July 2021 Board Update Meeting
- September 2021 Bond Oversight Meeting