

Centre County Metropolitan Planning Organization (CCMPO)
2021-2024 Transportation Improvement Program (TIP)
Project Selection Process

1. Background

The federal Fixing America's Surface Transportation (FAST) Act legislation and the federal *Statewide and Metropolitan Transportation Planning Final Rule* (Title 23 U.S.C. Section 34 and Title 49 U.S.C. Section 1607) require that local and state officials work cooperatively to maintain a continuous and comprehensive long-range transportation planning program in all urbanized areas with a population of over 50,000 persons in the United States. This Federal mandate is carried out by a formal group called a "Metropolitan Planning Organization (MPO)." The FAST Act also recognizes the designation of "Regional Transportation Planning Organizations (RTPOs)" to carry out these processes outside of urbanized areas. The FAST Act and the federal rule specify the primary roles and responsibilities of MPOs and RTPOs. The CCMPO is responsible for fulfilling these federal requirements in Centre County PA (State College Urbanized Area).

Every two years, Pennsylvania's MPO and RTPO Planning Partners, including the CCMPO, work in partnership with PennDOT, local transit providers, and local officials to identify priority transportation needs and develop a new Transportation Improvement Program (TIP) to address these needs over the next four-year period. The TIP details the planned expenditure of federal funds and state capital funds for specific programs and projects, within specified limits of fiscal constraint. In order to be included on the TIP, programs and projects must be included on each Planning Partner's adopted Long Range Transportation Plan (LRTP) or addressed through reserve line items included on the LRTP. The TIP years are based on the federal fiscal year, which extends from October 1 to September 30.

The list of projects on the TIP coincides with the First Four Year segment of the Commonwealth of Pennsylvania's Twelve Year Program (TYP), which is developed by PennDOT and adopted by the State Transportation Commission (STC) every two years, at the same time as the TIP.

In addition to the FAST Act, the Clean Air Act Amendments (CAAA) of 1990 specify planning activities for MPO and RTPO areas exhibiting air quality that is not in attainment with the National Ambient Air Quality Standards (NAAQS). Prior to 2004, air quality in Centre County was in attainment with the standards, and there were no special planning processes required. In June 2004, new air quality standards designated Centre County as a non-attainment area for ozone. Subsequent air quality measurements enabled Centre County to be redesignated as an attainment "maintenance" area. In 2013, federal legal proceedings changed the standards again, and Centre County was determined to be in attainment with the NAAQS. Special planning activities and air quality conformity analyses were no longer required for the LRTP and TIP.

In 2018, the U.S. Eighth Circuit Court of Appeals vacated major portions of a rule impacting air quality conformity requirements for the 1997 8-hour Ozone NAAQS. Although Centre County is still considered an attainment area for all current air quality standards, the Eighth Circuit Court's ruling and subsequent guidance issued by the U.S. Environmental Protection Agency require that Centre County meet conformity requirements for the 1997 8-hour ozone NAAQS. Thus, in 2018, an air quality conformity analysis was performed for the Centre County LRTP 2044 (2018 Update) and the 2019-2022 Centre County TIP. An Air Quality Conformity Determination Report was completed for the 2021-2024 TIP.

The CCMPO works to educate the general public on transportation programs and encourage interested citizens to participate in the STC public involvement process. The public is notified of the opportunity to provide input via the STC Twelve Year Program update outreach processes, and the CCMPO reviews public feedback compiled by the STC. The CCMPO solicits public input on transportation priorities through public meetings, press releases, surveys, etc.

2. Project Selection and Performance Measures

Projects in the TIP may address a variety of transportation modes, including improvements to roadways, bridges, transit, bicycle and pedestrian facilities, rail freight facilities and airports. In recent years, system maintenance has required a growing share of the Commonwealth of Pennsylvania's limited resources. A new focus on asset management coupled with a "Lowest Life Cycle Cost (LLCC)" approach is intended to focus the programming of funds on the TIP for projects that rehabilitate, reconstruct, and renew the existing and aging transportation infrastructure. Fiscal constraints also mean that very few new projects have been added to the TIP during recent updates.

The federal *Moving Ahead for Progress in the 21st Century Act (MAP-21)* bill, its successor, the *Fixing America's Surface Transportation (FAST) Act*, and associated federal rulemaking require PennDOT, MPOs, RTPOs, and transit operators to address performance based planning and programming (PBPP) in LRTPs and TIPs. Federal regulations also require those entities to approve performance measures and performance targets for several topic areas.

To meet the requirements of federal law and rulemaking regarding PBPP, PennDOT, the CCMPO, and CATA approved performance measures and performance targets for several topic areas:

- Safety
- Pavement [*National Highway System (NHS) only*]
- Bridge (*NHS only*)
- Transportation System (travel time) (*NHS only*)
- Transit Asset Management

PennDOT, the CCMPO, CATA, and the Centre County Office of Transportation (CCOT) are required to jointly agree on written provisions for how information will be cooperatively developed and shared related to the selection of performance targets and the collection and reporting of data to track progress in meeting critical outcomes. In November 2018, the CCMPO approved agreements with CATA and the CCOT that specify written provisions for developing, collecting and sharing of public transit performance data. In April 2019, the CCMPO approved written data collection and sharing provisions with PennDOT for the safety, pavement, bridge and transportation system performance topic areas.

Roadways and Bridges

The new projects selected for inclusion on the 2021-2024 Centre County TIP are consistent with PennDOT's new Transportation Asset Management Plan (TAMP), which was prepared in 2019 to guide investments in transportation infrastructure in future years and ensure compliance with federal performance measure targets. The targets are consistent with the TAMP's objectives to maintain roadways and bridges in desired state of good repair, managed to lowest life cycle costs, while achieving national and state-level transportation goals.

Carryover projects on the TIP were originally selected based on PennDOT's "Transportation Investment Plan." The purpose of the Transportation Investment Plan was to make ongoing assessments and to reevaluate the data associated with the transportation decision-making process by ensuring that each dollar invested was directed in a fashion that met a "strategic direction" and enhanced the overall "performance" of the Commonwealth's transportation system.

The Investment Plan focused on the following four priority areas:

- Bridges on the National Highway System (NHS)
- Roadway conditions on the NHS
- Bridges on the remainder of the roadway system
- Roadway conditions on the remainder of the system

Safety needs are identified through PennDOT's annual Highway Safety Improvement Program (HSIP) review process, using data and resources such as the statewide Intersection Safety Implementation and Roadway Departure Implementation Plans. Identification of projects includes field review of key locations identified by PennDOT and other project sponsors. Implementation of safety improvement projects is intended to meet the goals of PennDOT's Strategic Highway Safety Plan (SHSP).

In addition to the PennDOT-focused plans and programs, projects are selected from the following sources:

- Project priorities and line items specified in the Centre County LRTP 2044
- Priorities of key project sponsors, including PennDOT Engineering District 2-0, CATA, CCOT, Centre County Government, and municipalities
- Project priorities committed to as part of the Decade of Investment (DOI) list generated during consideration of Pennsylvania Act 89 of 2013

Meetings are held with PennDOT Engineering District 2-0 staff to review candidate lists of projects for possible inclusion in the TIP, considering public involvement and consistency with the TAMP, Transportation Investment Plan, SHSP, and the Centre County LRTP 2044. The CCMPO and project sponsors work together to select the suite of projects that provides the greatest possible improvement in asset conditions and improves the overall performance of the system.

Safety Projects [Performance Measure (PM)1]

Federal safety performance measures were implemented in 2016. Four of the five federal performance measures were previously included in the Centre County LRTP 2044 when it was adopted in September 2015.

Targets for measuring safety performance were first established by PennDOT in 2017 and have been updated annually through January 2020.

On January 28, 2020, the CCMPO voted unanimously to support the safety performance measure targets established by PennDOT, as illustrated in the following table.

Centre County MPO Supporting Values (Targets) for All Years (Targets are based on a rolling five-year average)						
Performance Measure	Initial - 2018		Year 2 - 2019		Year 3 - 2020	
	Baseline 2012-2016	Target 2014-2018	Baseline 2013-2017	Target 2015-2019	Baseline 2014-2018	Target 2016-2020
Number of fatalities	14.6	17.2	15.0	16.4	15.2	14.9
Rate of fatalities per 100 million VMT	1.080	1.240	1.102	1.173	1.096	1.049
Number of serious injuries	37.8	41.3	38.6	41.1	44.0	54.8
Rate of serious injuries per 100 million VMT	2.802	2.979	2.835	2.940	3.173	3.857
Number of non-motorized fatalities and serious injuries	6.2	9.8	8.0	9.5	9.4	13.7

The 2021-2024 Centre County TIP includes three roadway safety improvement projects that are intended to help improve the performance of the roadway system relative to the five federal safety performance measures. Two of the projects are carryover projects from the previous 2015-2018, 2017-2020, and 2019-2022 TIPs. The projects were initially identified as candidates in 2015 using a three-step process:

1. Using PennDOT crash data to identify locations (clusters) with a high number of crashes and fatalities.
2. Conducting an in-house review of candidate locations with District 2-0 and CCMPO staff.
3. Conducting a field view of candidate locations with District 2-0, CCMPO, and municipal officials from the subject locations.

PennDOT and CCMPO staff then prepared recommendations for new project starts, with consideration to the estimated effectiveness of countermeasures to mitigating crashes, and to the fiscal constraints for the 2015-2018 TIP. Recommendations were presented to the CCMPO Technical and Coordinating Committees.

In November 2015, the Coordinating Committee approved the allocation of funding on the 2015-2018 TIP to complete feasibility studies or preliminary engineering for the following two projects, which are now scheduled for construction within the timeframe of the 2021-2024 TIP:

Safety Project	Improvement Focus	TIP Funding	% of Base Highway TIP	Total Federal HSIP Funding
Route 26/45 Intersection	Serious injury crashes	\$5,318,613	11.3%	\$0
Route 64/550 Intersection	Serious injury crashes Fatal crashes	\$3,394,880	7.2%	\$2,976,000

In February 2017, as part of a process to repurpose unallocated federal earmarked funds, the CCMPO Coordinating Committee approved the allocation of funds on the 2017-2020 TIP to one additional roadway safety project that was originally evaluated in the 2015 effort.

Funding for a feasibility study was carried forward from the 2017-2020 TIP to the 2019-2022 TIP. A feasibility study is nearing completion, and funding for the Preliminary Engineering phase of work on a preferred alternative is included on the 2021-2024 TIP.

Safety Project	Improvement Focus	TIP Funding	% of Base Highway TIP	Total Federal HSIP Funding
Route 26/150 Intersection	Serious injury crashes Fatal crashes	\$358,216	0.08%	\$0

One new safety improvement project is included on the 2021-2024 TIP, funded with discretionary ("spike") HSIP funds:

Safety Project	Improvement Focus	TIP Funding	% of Base Highway TIP	Total Federal HSIP Funding
High Friction Surface Treatment Selected Locations on Routes 26, 322, 350	Serious injury crashes from lane departures	\$400,000	0.09%	\$400,000

The High Friction Surface Treatment project locations were identified by PennDOT and the CCMPO staff as part of the annual HSIP discretionary funding program project solicitation process in 2019.

In September 2020, the CCMPO will adopt the new Centre County LRTP 2050. The new LRTP is anticipated to identify candidate safety improvement projects that may be considered for funding in the next 2023-2026 TIP and future TIPs.

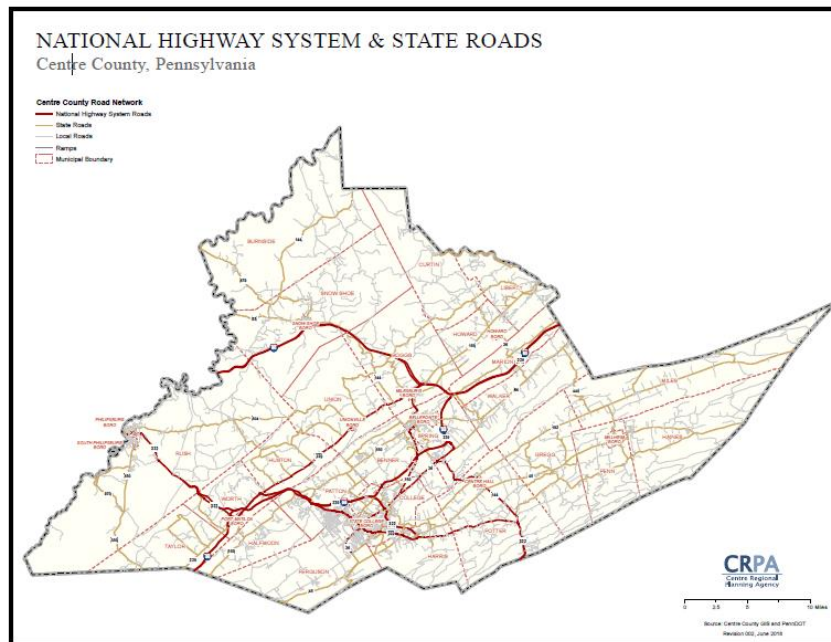
PennDOT, the CCMPO, municipalities and local stakeholders have also continued to advance infrastructure and programmatic efforts to address safety for nonmotorized travel. Examples include:

- Signal, crosswalk, and sidewalk improvements to improve pedestrian safety are being incorporated into the State Route (SR) 3014 (Business Route 322 – Atherton Street) Section 153 Drainage/Repaving project.
- Along with improvements that are part of the Section 153 project, additional improvements are being implemented through the SR 3014 Pedestrian and Streetscape Improvements project that is financed with Transportation Alternatives (TA) Program funding on the TIP. The TA Program project is focused on the sections of Atherton Street proximate to the SR 26 Southbound (College Avenue) and SR 26 Northbound (Beaver Avenue) intersections. These locations have exhibited a high number of crashes and near misses involving pedestrians and bicyclists.
- Education programs and bike light giveaways sponsored by Penn State University and the CentreBike bicycle advocacy group.
- Elements of driver training curriculum at the State College Area School District that focuses on Pennsylvania’s law requiring drivers to provide 4 ft. clearance when passing bicyclists.

- Public relations activities focused on educating residents and vehicle operators about Pennsylvania’s 4 ft. bicycle passing law. Activities include posting messages on dynamic message signs in various roadway locations, and exterior advertising on CATA transit buses.
- Training sessions with CATA bus operators relative to interactions with pedestrians and bicyclists.

Roadway Pavement and Bridge Improvement Projects (PM2)

Federal PM2 performance measure targets apply only to roadways and bridges on the designated National Highway Performance Program (NHPP), also known as the National Highway System (NHS). NHS routes in Centre County are illustrated on the following map.



Federal regulations require that no more than 5 percent of Pennsylvania’s NHS Interstate lane-miles be in Poor pavement condition. If that requirement is not met, restrictions are placed on how PennDOT can allocate federal NHPP and Surface Transportation Program (STP) funds. PennDOT’s targets for NHS Interstate roadways reflect the federal regulation: no more than 5 percent of Pennsylvania’s NHS Interstate pavements shall be rated in poor condition. Although FHWA has not established a minimum condition for NHS non-Interstate roadways, PennDOT has established performance targets for the non-Interstate NHS roadways.

PennDOT Pavement Performance Targets Supported by the Centre County MPO (September 2018)			
Measure	Baseline 2017	2-year Target 2019	4-year Target 2021
% of Interstate pavements in Good condition	67.2 %	N/A	60.0 %
% of Interstate pavements in Poor condition	0.4 %	N/A	2.0 %
% of non-Interstate NHS pavements in Good condition	36.8 %	35.0 %	33.0 %
% of non-Interstate NHS pavements in Poor condition	2.3 %	4.0 %	5.0 %

One of the projects included on the 2021-2024 TIP will have a significant impact on improving poor pavement condition on the NHS in Centre County. The project is located on one of the last remaining sections of the NHS with poor pavement condition:

Pavement Project	Improvement Focus	TIP Funding	% of Base Highway TIP	Total Federal Funding
SR 3014 Bus Route 322 Atherton St. Section 153 Drainage and Repaving	Drainage system replacement Pavement resurfacing	\$14,515,587	30.8%	\$7,434,480

The 2021-2024 TIP includes 18 bridge replacement and repair projects. Five of the projects involve bridge preservation efforts, which in some cases include multiple structures in different locations. Four of the projects involve structures on non-Interstate NHS routes, including one bridge preservation project that includes four individual structures on various NHS routes. A total of seven bridge structures are being repaired on non-Interstate NHS routes.

PennDOT's 2018 Performance Measures Annual Report for Bridges in Centre County noted that four bridges on non-Interstate NHS routes are in Poor condition, out of a total of 26 bridges on these routes. The 2018 Performance Measures Report also indicated that at the end of 2018, only 0.39% of the total bridge deck area on the NHS in Centre County was in Poor condition. With the investments being made in bridges on the past 2019-2022 TIP and the 2021-2024 TIP, bridge conditions on the NHS should continue to be well above PennDOT's performance measure target for Poor bridges. PennDOT's targets, which were formally supported by the CCMPO, are illustrated in the following table.

PennDOT Bridge Performance Targets Supported by the Centre County MPO (September 2018)			
Measure	Baseline 2017	2-year Target 2019	4-year Target 2021
% of NHS bridges by deck area classified in Good condition	25.6 %	25.8%	26.0 %
% of NHS bridges by deck area classified in Poor condition	5.5 %	5.6%	6.0%

The investment in bridges on the 2021-2024 TIP is illustrated in the following table.

# of Bridge Projects	Improvement Focus	TIP Funding	% of Base Highway TIP	Total Federal Funding
18	Bridge Replacement and Rehabilitation	\$14,542,592	30.9%	\$8,292,5080

Travel Time Reliability (PM3)

The Travel Time Reliability performance measures are quite complex and apply only to roadways on the NHS.

PennDOT identified and evaluated data and tools used to produce the baseline PM 3 performance measures. The University of Maryland CATT Lab's Regional Integrated Transportation Information System (RITIS) software platform is used to generate all the travel time based measures. Because there is limited historic information, and there is a need for additional research understanding the variances and factors influencing each of the travel time performance measures, PennDOT established conservative travel time performance targets, which may be more appropriately referred to as benchmarks.

PennDOT has been tracking the measures since 2018. States are permitted to adjust their 4-year targets at the midterm of the performance period, representing data through 2019 in a report due to FHWA by October 1, 2020.

Within Centre County, PM3 performance measures include:

- Percent of Person-miles Traveled on the Interstate System that are Reliable
- Percent of Person-miles Traveled on the Non-Interstate NHS that are Reliable

Level of Travel Time Reliability (LOTTR) is defined as the ratio of the 80th percentile travel time of a reporting segment to a "normal" travel time (50th percentile), using data from FHWA's free National Performance Management Research Data Set (NPMRDS) or equivalent. Data are collected in 15-minute segments during all time periods other than 8 p.m.-6 a.m. local time. The measures are the percent of person-miles traveled on the relevant NHS areas that are reliable.

- Truck Travel Time Reliability Index – Interstate System Only

Truck Travel Time Reliability (TTTR) Index. Reporting is divided into five periods: morning peak (6-10 a.m.), midday (10 a.m.-4 p.m.) and afternoon peak (4-8 p.m.) Mondays through Fridays; weekends (6 a.m.-8 p.m.); and overnights for all days (8 p.m.-6 a.m.). The TTTR ratio will be generated by dividing the 95th percentile time by the normal time (50th percentile) for each segment. Then, the TTTR Index will be generated by multiplying each segment's largest ratio of the five periods by its length, then dividing the sum of all length-weighted segments by the total length of Interstate.

PennDOT's targets, which were formally supported by the CCMPO, are illustrated in the following table.

Travel Time and Annual Peak Hour Excessive Delay Measures (Estimated using RITIS Data Extract from May 8, 2018) Supported by the Centre County MPO (September 2018)				
Measure	Centre Co. Baseline 2017	Statewide Baseline 2017	2-year Target 2019	4-year Target 2021
Interstate Reliability (Statewide)	100.0%	89.8 %	89.8 %	89.8 %
Non-Interstate Reliability (Statewide)	92.6%	87.4 %	N/A	87.4 %
Truck Reliability Index (Statewide)	1.14	1.34	1.34	1.34

There is one project on an Interstate NHS route in Centre County that is expected to result in significant improvements in travel time reliability. The I-80/I-99 High Speed Interchange (Exit 161) project, which is being advanced through PennDOT's statewide Interstate Management (IM) TIP, will significantly reduce travel delay on I-99 Northbound approaching I-80 Exit 161, and on I-80 eastbound and westbound approaching Exit 161. Approximately \$109 million is allocated on the IM TIP for this project, with the remaining \$18.2 million needed to complete the project included in the 2025-2028 time period of Pennsylvania's Twelve Year Program.

There are no projects on the 2021-2024 TIP that are specifically focused on improving travel time reliability on non-Interstate NHS routes. However, the SR 3014 Business Route 322 (Atherton Street) Section 153 project includes some upgrades for traffic signalization that are intended to help with addressing congestion resulting from special events and incidents.

State College Area Connector Project

The 2021-2024 TIP includes \$26 million in discretionary (spike) funds for the State College Area Connector (SCAC) project, which is in the general area of the Route 322/144/45 corridors. Funding is provided for the Preliminary Engineering and Final Design phases.

Based on the information collected in the Route 322/144/45 Data Refresh effort that was completed by PennDOT in 2019, there are existing and projected needs associated with safety and travel time performance on roadways in this area of Centre County. Needs associated with pavement and bridge condition performance would also be documented during the preliminary engineering work.

Safety performance measures are applicable to all state and local roadway systems in the SCAC study area. The travel time and pavement/bridge performance measures are applicable to roadways in the study area that are part of the NHS. Both Route 322 and Route 144 in this area of Centre County are NHS routes.

No specific alternative improvements have been developed for the SCAC project at this time. The commitment of funding for the PE phase will enable a PEL process and preliminary engineering work to be completed, which is anticipated to result in the documentation of a specific "purpose and need" statement(s) for the project; and the development and evaluation of an alternative improvement(s).

Thus, the commitment of state funds for the PEL study and preliminary engineering work may lead to the future investment of federal and state funds for improvements that contribute to meeting the performance measure targets established by PennDOT and the CCMPO.

Public Transportation Projects

The 2021-2024 TIP includes public transportation projects and line items being carried forward from the previous 2019-2022 TIP. New transit projects are also included on the 2021-2024 TIP. The transit projects reflect the priorities established by:

- The project prioritization process for the LRTP 2044
- PennDOT's Capital Planning Tool
- Operations and maintenance planning by CATA and the CCOT

In addition, other planning efforts help guide the establishment of priorities for transit projects. In November 2015, the CATA Board of Directors approved its *Strategic Plan Update 2016-2026*, which detailed goals, objectives, and implementation timeframes within five core themes:

1. Address Growth Prudently
2. Advance Technology
3. Plan for Succession
4. Build Reserves
5. Enhance the Use of Metrics

In 2018, CATA and PennDOT (on behalf of the CCOT) completed federally-required Transportation Asset Management (TAM) Plans to document and assess the condition of all assets associated with the delivery of public transportation service. The TAM Plans were provided to the CCMPO in 2018. In 2019, the required annual assessments of the TAM Plans were prepared by CATA and PennDOT, and provided to the CCMPO.

The investments represented by the project funding in the transit element of the TIP are focused on implementing improvements that will help CATA meet the objectives in its *Strategic Plan Update*, and will ensure that CATA and the CCOT maintain consistency with their respective TAM Plans.

In particular, the TIP includes funding to improve the condition of CATA's rolling stock. In late 2019, the average age of CATA's fixed route bus fleet was 8 years, and 19 of 79 buses (24%) met or exceeded both the Federal Transit Administration's useful life of 12 years and CATA's target maximum replacement age of 16 years. Funding is also included in the TIP to expand the CATA fleet in response to growing demand for transit service to new residential developments in the State College and Bellefonte areas, which comprise the urbanized core area of Centre County.

Other Projects

The 2021-2024 TIP may include funds for projects approved for funding from programs allocated on a statewide basis, including the following:

- Transportation Alternatives Set-Aside
- Appalachian Regional Commission Local Access Road Program
- Automated Red Light Enforcement and Green Light-Go Programs
- Multimodal Transportation Fund
- Congested Corridor Improvement Program
- Rapid Bridge Replacement Program (P3)
- Highway-Rail Grade Crossing Safety Program (RRX)
- Highway Safety Improvement Program (HSIP) Statewide Set-aside

As new projects are successful in obtaining funding through these programs, the CCMPO will add the projects to the TIP.

The project priorities and essential project information are compiled in the Draft TIP documentation package made available to the public as part of a 30-day public comment period before adoption by the CCMPO.

Following adoption of the TIP by the CCMPO, the TIP is approved by PennDOT, which then submits the Statewide TIP to the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) for final approval. After final approval of the Statewide TIP by FHWA and FTA, the TIP takes effect at the beginning of the federal fiscal year on October 1, 2020.