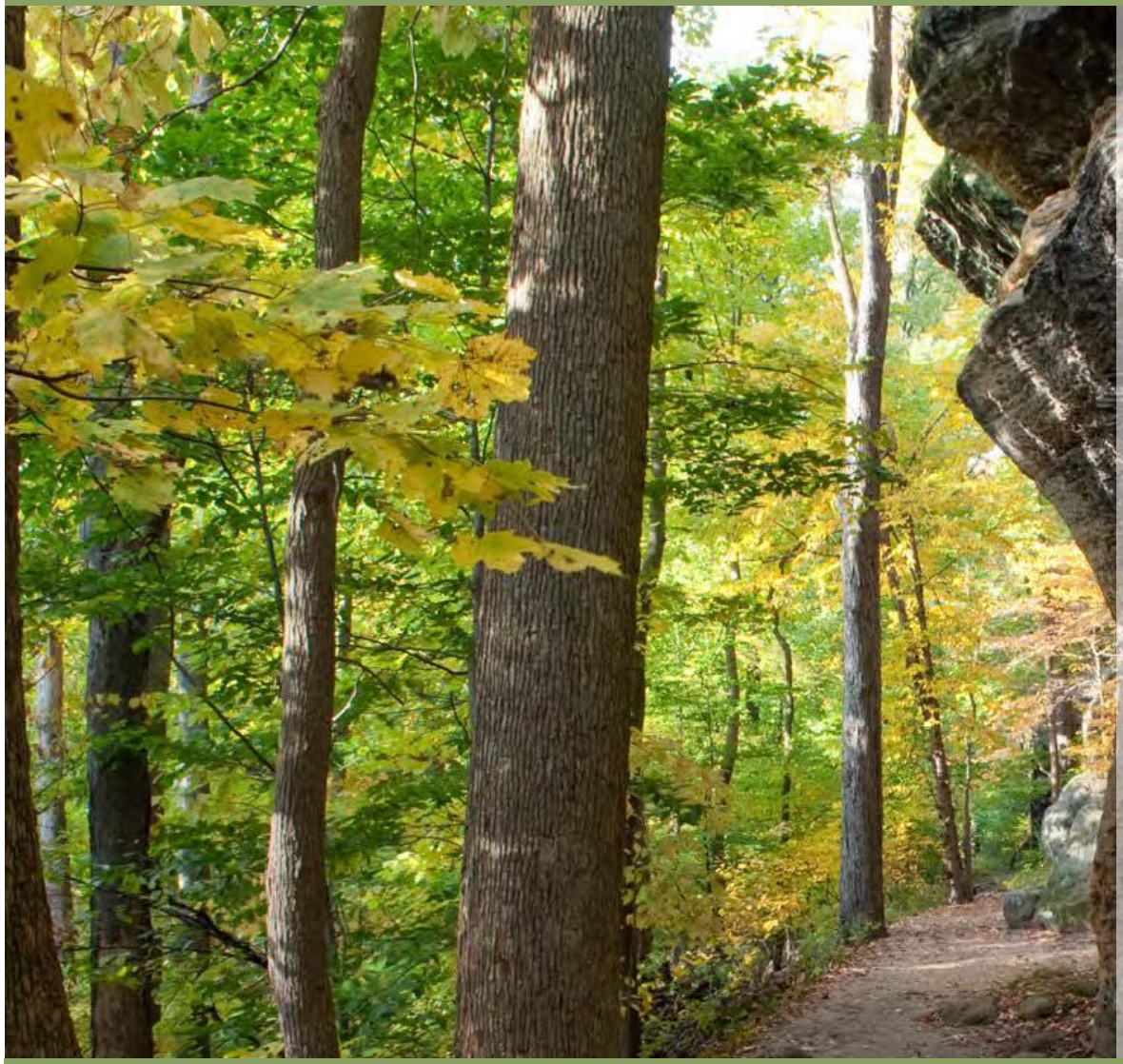


Congestion Assessment

Cuyahoga Valley National Park

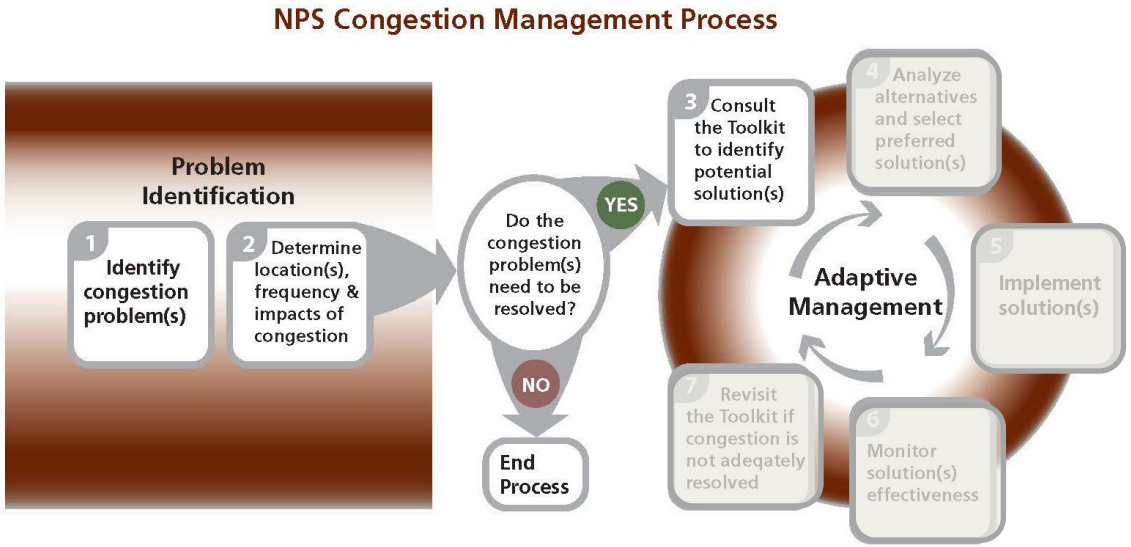
August 2017

National Park Service
WASO Congestion Management Program

Congestion Assessments Description

Congestion Assessments provide short-term technical transportation support to national parks, in cooperation with regional transportation coordinators. Parks with congestion have difficult to manage challenges which impact visitor experience, resources, safety, asset management and park operations.

These assessments use the first three (3) steps in the 7-step Congestion Management Toolkit process. Assessments use a structured approach to exploring high-level park congestion issues and information, then matches those issues with a wide range of potential congestion mitigation tools at the end of the report. Assessments are not decision-making documents or transportation plans. Post-assessment technical support is available from regional transportation coordinators, the Denver Service Center, Federal Lands Highway (FHWA) and the Volpe National Transportation Systems Center.



For more information about the Congestion Management Program and related technical support, please contact Linda MacIntyre, Program Manager at 303 969-2483. The Congestion Management Toolkit is at www.nps.gov/transportation/pdfs/NPS-CMS_Toolkit.pdf.

Background

Brief Description of the Park

Cuyahoga Valley National Park encompasses 33,000 acres along the Cuyahoga River between Cleveland and Akron, Ohio. Its setting in a metropolitan area and its combination of scenic, natural, historic, recreational, and education values make it a well-loved gem in the national park system. Of the 33,000 acres, the National Park Service manages approximately 20,000 acres; the rest is held in other public and private ownership.

The park's open space is vast for a metropolitan setting, increasing possibilities for preservation and restoration. Its topography and unique geographic position allows for rich biological diversity. The valley sits at the transition between major physiographic divisions of the country, the Appalachian Mountains and Great Plains, and near the southern edge of Ice Age glaciation. The valley's uplands, steep slopes, moist ravines, and floor support mixed deciduous forests, wetlands, and other habitat types in a variety of stages of succession. These, in turn, provide a refuge for an assortment of plants and wildlife including rare, threatened, and endangered species. Some of the largest remaining forest tracts in northeast Ohio, stunning exposed rock ledges, and waterfalls all add to the natural scenery.

The valley's cultural assets include a continuum of transportation resources, many of which took advantage of the natural north-south corridor created by the valley. The variety of transportation-related resources documents the evolution of transportation and its impact on economies, communities, and daily life.

Transportation-Related Infrastructure and Visitor Access

CUVA is located in a metropolitan area and most of its visitors are local, repeat visitors. The park has porous boundaries and multiple attractions and parking lots. A large majority of visitors access CUVA in private vehicles. According to the 2015 Visitor Use Study, 90 percent of visitor groups traveled to the park in a car, truck, or SUV, while six percent traveled by bicycle. Once in the park, visitors use a variety of transportation infrastructure, including roads, parking lots, trails, and the Cuyahoga Valley Scenic Railway.

Trails: The extensive trail system, anchored by the Ohio & Erie Canal Towpath Trail and enhanced by the parallel Cuyahoga River and Cuyahoga Valley Scenic Railway, supports active and diverse, year-round recreational opportunities and experiences for visitors. The canal is a high profile visitor facility for interpretation, education, and recreation due to the Towpath Trail and new exhibits about the canal at the Canal Exploration Center. The Bike & Hike Trail, a regional trail operated by Summit County Metro Parks, runs along the eastern edge of the park. Due to the park's location in a valley and limited bicycle infrastructure on nearby roads, many bicyclists drive to the park to use the Towpath, Bike & Hike Trails, and the East Rim Mountain Biking Trail, rather than biking into the park. As a regional trail, the Bike & Hike Trail has many access points, including several parking lots within in CUVA. However, trail users do not have to go through the park to access the trail.

Rail: an unusual feature of CUVA is the Cuyahoga Valley Scenic Railway (CVSR), which runs from Rockside Station at the northern boundary of the park to Akron Northside Station south of the park boundary. The CVSR has one additional formal station in the Village of Peninsula, as well as five additional "Bike Aboard" stops where bicyclists, hikers, or other pedestrians can flag down the train and board. A Bike Aboard ticket costs $3 for a

one-way trip, while a round-trip ticket ranges from $15 to $28 depending on the cabin. This round trip ticket lasts for a whole day, and the railway encourages riders to get off and explore the park, and then board a different return train.

In the summer and fall, the train operates six days a week. . The railway also runs a variety of special seasonal or themed rides, including a Polar Express ride around the winter holiday season that runs seven days a week. Train ridership has been increasing in recent years. In 2015 (the latest year for which data was available) total ridership was 185,550, and Bike Aboard ridership was 22,600, an 11 percent increase over 2014.

Roads: Three interstate highways pass through or near the park: I-77, I-80 (Ohio Turnpike), and I-271. Major local roads within the park include Route 303 (Streetsboro Road), an east-west road that passes through the Village of Peninsula; Route 82, an east-west road through the northern portion of the park; Riverview Road, a north-south road that roughly follows the Cuyahoga River; and the Akron-Peninsula Road, a north-south road in the southern portion of the park.

The NPS does not have jurisdiction over roads in the park. The roads are owned and managed by 17 different jurisdictions, including the Ohio Department of Transportation, and county, city, and township governments.

Parking: CUVA has many parking lots owned and managed by the NPS, ranging from small gravel lots with room for a handful of cars to large, paved and striped lots with 200 spaces. Many parking lots fill regularly during the peak season and on weekends, and others fill up in conjunction with special events. In November 2016, the park conducted an analysis of parking congestion and ranked 38 lots as green (limited to no congestion), yellow (occasional congestion), and red (no congestion) (see Figure 2). Through this analysis, the park identified six parking areas of highest concern: Boston Store Main and Overflow Lots, Blue Hen Falls, Lock 29, Hunt House, Indigo Lake, and Brandywine Falls.

Local/Regional Transit: Several bus lines operate close by the park, and run at a frequency of around once an hour. The park attractions located closest to transit stops include Lock 39/Rockside Road, which is within a quarter mile of a bus stop, and the Bike & Hike trail parking lot at Boston Mills Road and Akron-Peninsula Road, which is within a mile of a bus stop (see Figure 3).

Entrance stations: none in the park.

Special Use Permits: A variety of special events take place within park boundaries during the peak season, including festivals, concerts, running races, and weddings. The most popular locations for special use permits include the Towpath Trail, Ledges, Everett Covered Bridge, and Howe Meadow. There are also several locations in the park where partners hold special events that do not require permits, including weddings at the Happy Days Lodge, a farmer's market every Saturday during the summer at Howe Meadow, and events in the Village of Peninsula. Many parking lots experience event-related congestion.

Figure 1. Cuyahoga Valley National Park Map Overview

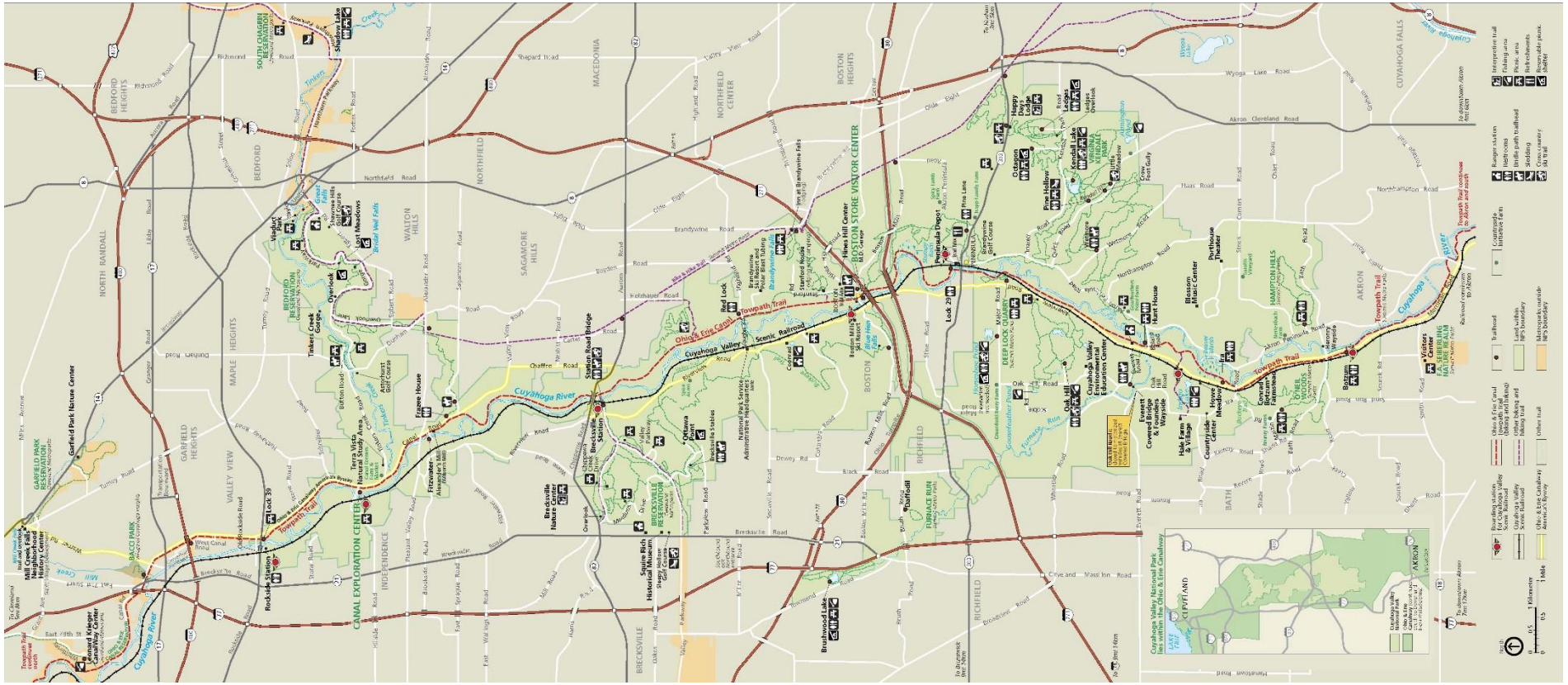


Figure 2. Parking Congestion Hotspots Map

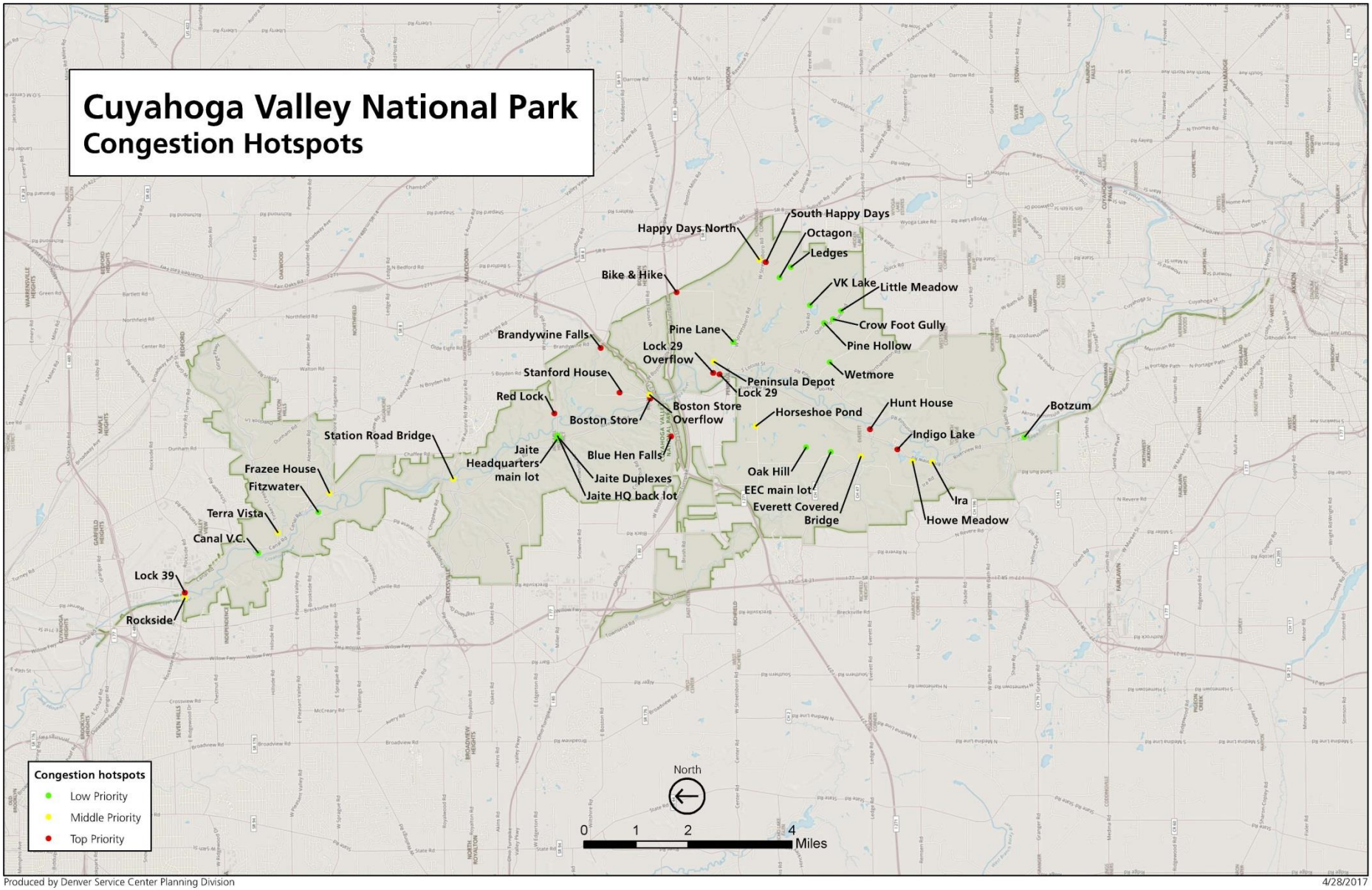
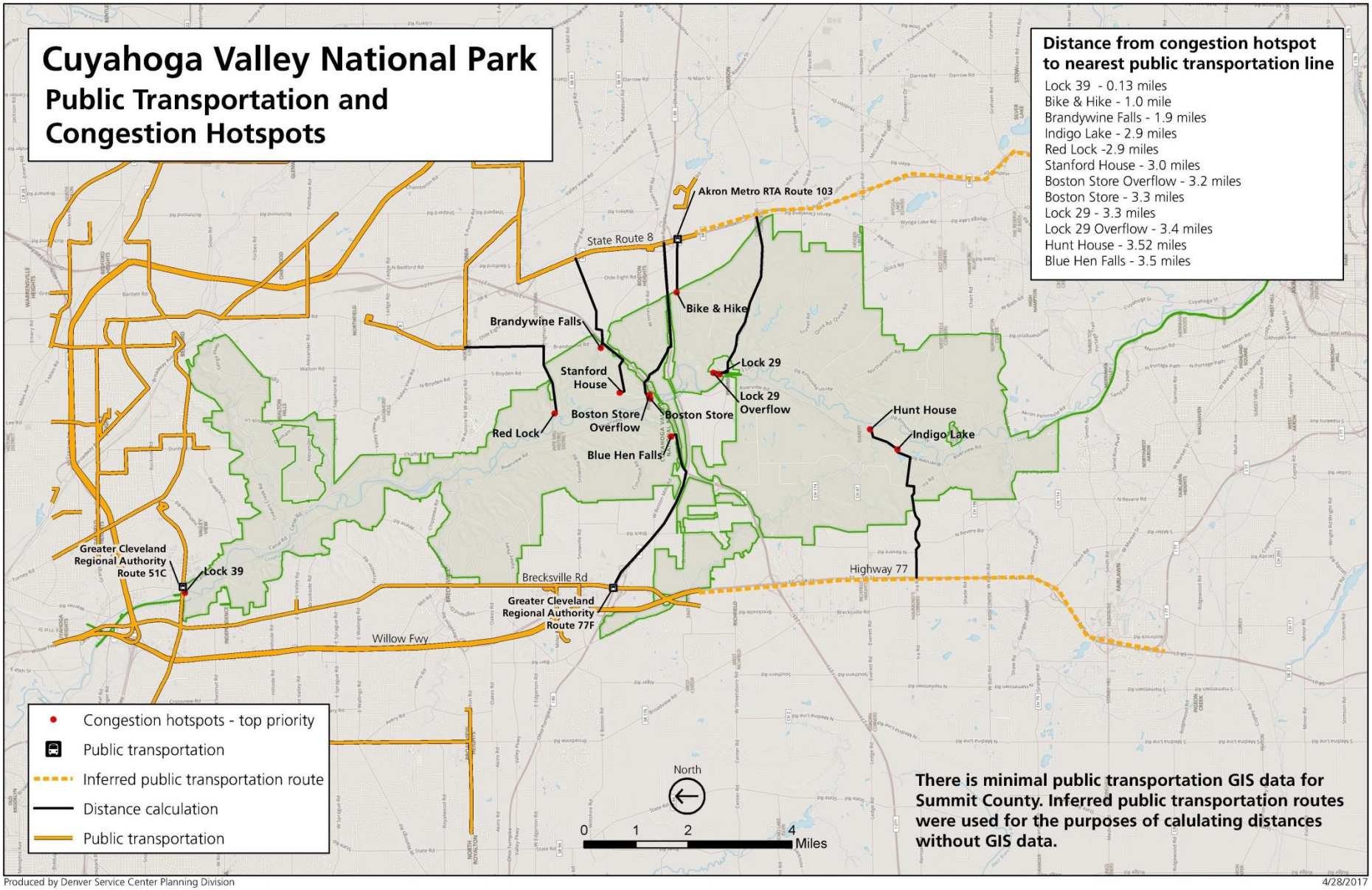


Figure 3. Public Transportation Proximity Map



Regional Transportation Context

CUVA is located midway between Cleveland and Akron, and people commuting to both cities pass through or close to the park. The park is also a draw for visitors from both metropolitan areas and the surrounding region for recreational opportunities and special events. Since it does not have jurisdiction over park roads, CUVA works with the road owners, including the state and local municipalities, on changes that would impact the park, such as pedestrian safety improvements or increased parking or speed limit enforcement.

CUVA also has an opportunity to partner with the region's Metropolitan Planning Organizations (MPOs). Due to its location in an urbanized area, CUVA is located within two MPOs: the Northeast Ohio Areawide Coordinating Council (NOACA) in the north, which covers a 5-county area including Cleveland; and the Akron Metropolitan Area Transportation Study (AMATS) in the south. MPOs lead the transportation planning process at the regional level by developing a long-range transportation plan with goals and performance measures for the regional transportation system, as well as a list of specific, prioritized projects, called the Transportation Improvement Program (TIP). By reaching out to the local MPOs, CUVA could learn about planned projects in the area related to transit, trails, roads, and visitor access. The park can also work with the MPOs to help ensure that priority projects for the park are included in the regional transportation plans.

Another opportunity to consider would to participate in the Midwest Region's Long Range Transportation Plan update (the five-year update is due in 2021). One of the goals is to "Improve the ease of access to, within and through park units for all people to maintain and enhance the quality of transportation-related visitor experiences." The plan includes objectives to manage congestion and minimize the impacts to visitor experience.

Congestion Problems: Locations, Frequency and Impacts

Each year the congestion issues seem to grow bigger, start earlier in the season, and last later into the fall. Visitation seems to be increasing, and CUVA is a complex park. There are 17 local jurisdictions within the park which creates unusual partnerships each with their own individual concerns and opportunities.

Parking areas have been the focal point for the surge in congestion. There are 17 linear parking lots along towpath that have moderate to major issues. In order to begin addressing this, we assembled teams to get a better handle on congested parking areas. Two teams focused on the six most congested, most hazardous (safety), and most resource impacted sites. One team focused on five areas, and one team focused just on Brandywine Falls (which is a huge problem area on its own). Both teams are made up of a variety of staff with input from most all divisions.

Congestion Survey Questions	Park Responses
1) What are the impacts of congestion on visitor experience and resources?	***Select one or more:*** x visitor experience x safety x park operations __ park facilities x natural resources __ cultural resources __other
2) How is safety affected by congestion?	***Select one or more:*** x ped/bike conflicts with vehicles x delayed emergency response __ clustering of vehicle crashes x ped/bike conflicts __ other ***OR*** __ *safety is not an issue*
3) Where is congestion present in the park?	***Select one or more:*** x parking areas x roadways providing access to the park] __ visitor center __ park entrance station __ primary park vehicle tour route __ pedestrian loading areas __ pedestrian paths/trails __ trailheads __ scenic overlooks __transit stops __ other park attractions
4) During which of the following timeframes is congestion present?	***Select one or more:*** __ only during major peak season holidays (1-10 days/year)

	__only during peak season (31-75 days/year) x__on weekends (52-114 days) __on weekdays (more than 114 days) x_ special events
5) Is the park actively managing congestion?	x_Yes __No If yes currently, what strategies does the park use? LE rangers. VUM staff hiring. Messaging to direct use to other areas. Promoting alternative transportation.
6) Has your current congestion mitigation strategy (or strategies) been successful?	__ why were they successful? __why were they *not* successful? Reacting to problems rather than planning ahead.
7) Has the park been partnering with other groups or agencies to manage congestion?	x_Yes __No If yes, what groups or agencies? Plan to involve the railway and volunteers. Talking to private ski area about use of parking for overflow when not ski season. Local jurisdictions regarding road maintenance.

Figure 4. Cuyahoga Valley National Park –Congestion Hotspots / Land Ownership Map

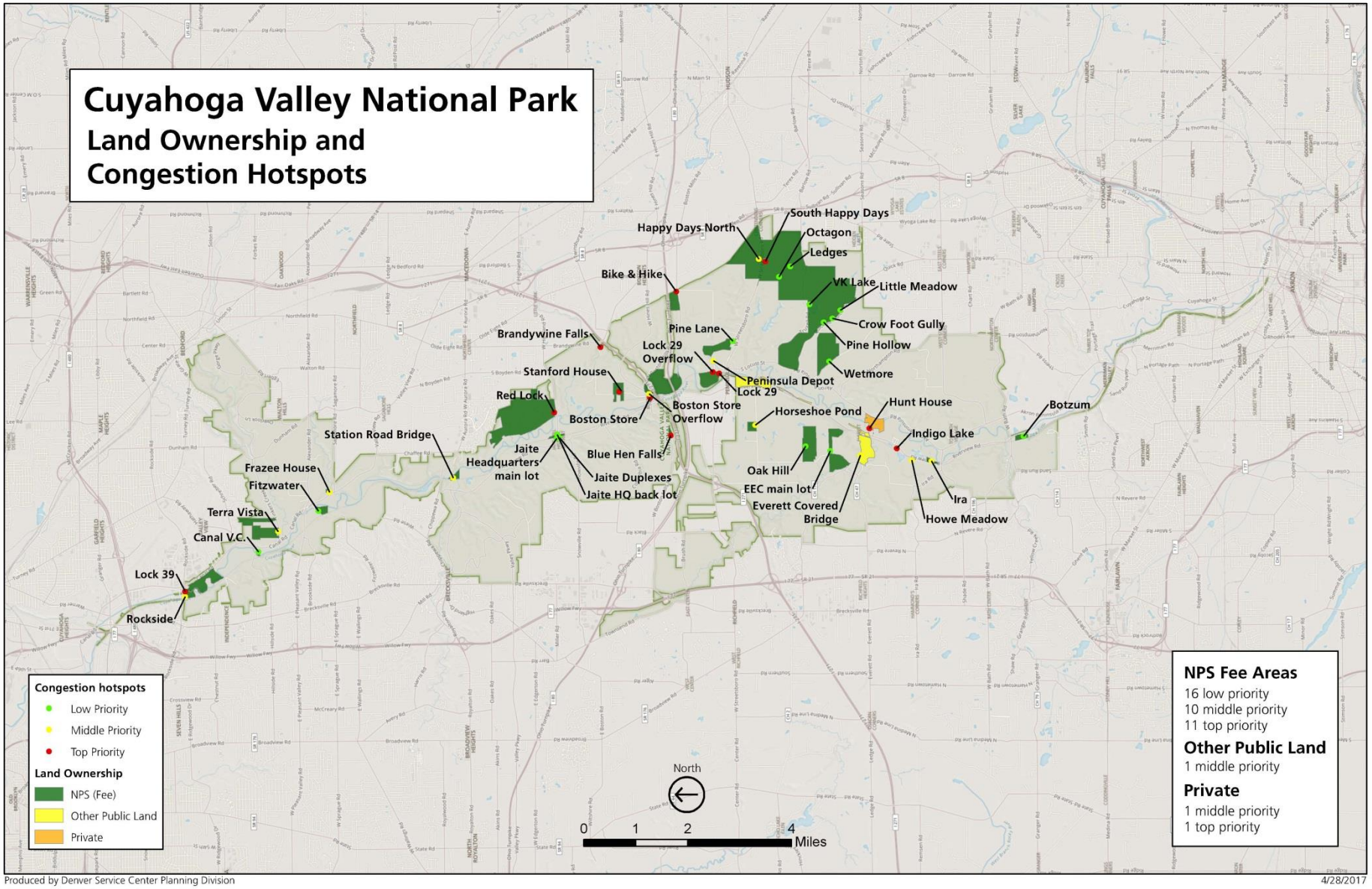
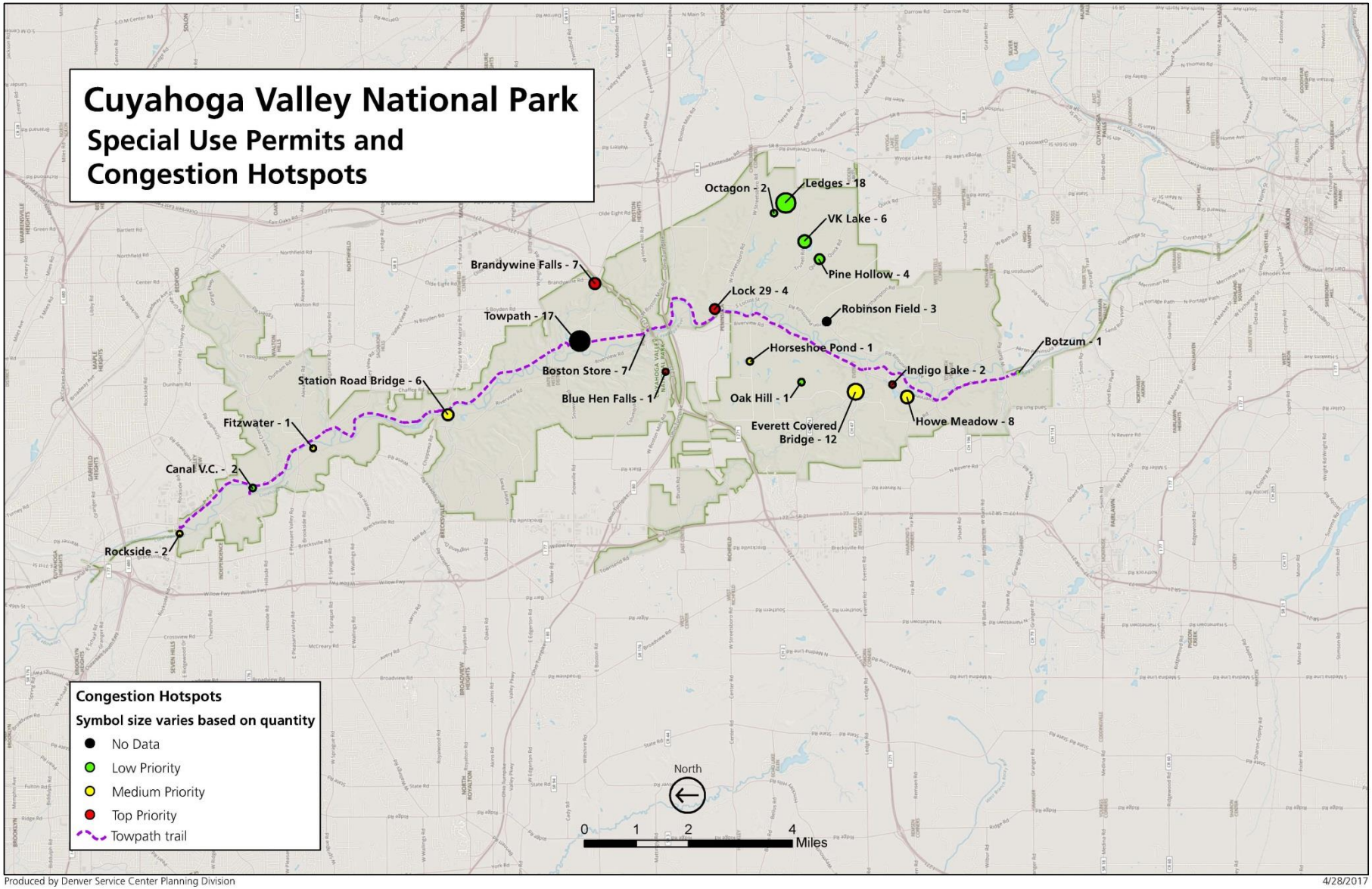


Figure 5. Cuyahoga Valley National Park –Special Use Permits and Congestion Hotspots



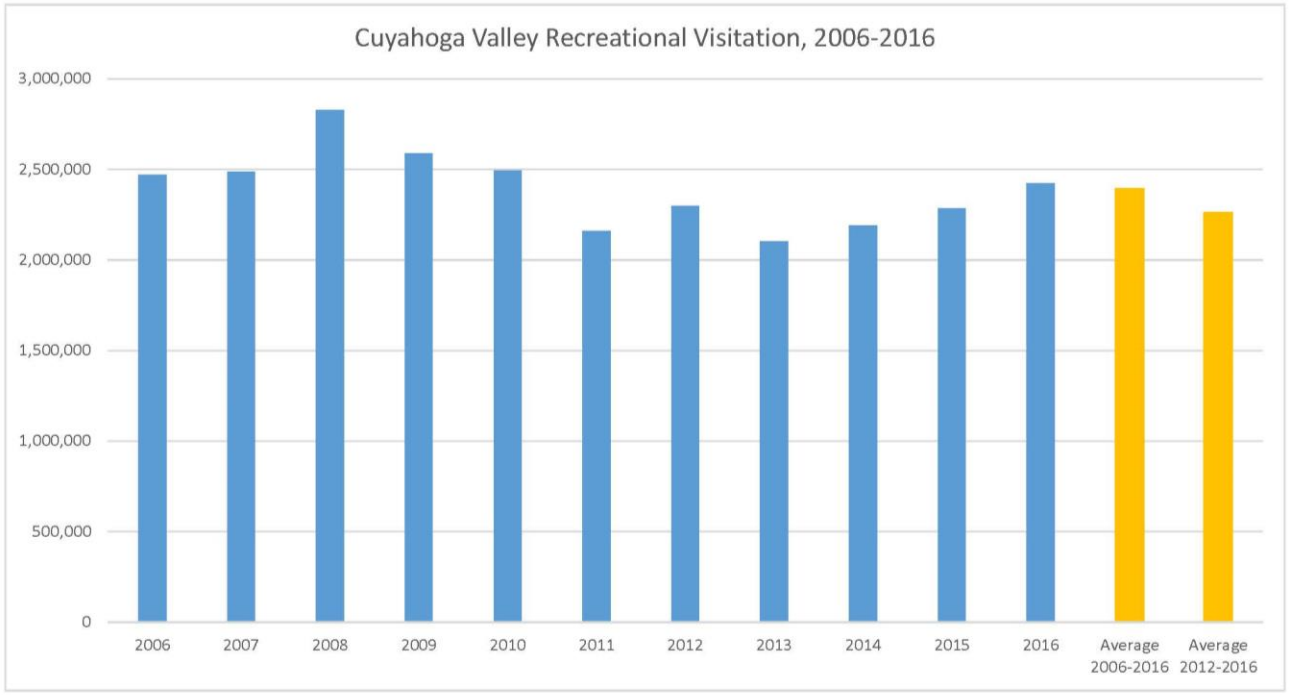
Congestion-Related Data, Plans and Trends

NPS Public Use Statistics

NPS Public Use Statistics Office (PUSO) data on overall recreation visitation was reviewed in preparing this report. Recreation visitation is derived from a formula that uses vehicle counts, reduces those counts slightly to account for non-recreational vehicles, and then multiplies the remaining vehicles by a people per vehicle multiplier to get a recreation visitation number.

Between 2010 and 2016 recreation visitation at CUVA fluctuates between 2,492,670 and 2,103,010 visitors a year. CUVA has experienced relatively flat growth in visitation over last 6 years. The Average Annual Growth Rate (AAGR) of recreation visitation at CUVA was -0.46% between 2010 and 2016. The AAGR for all NPS units in Ohio and the Midwest Region for 2010-2015 was -0.83% and -0.15% respectively. This means CUVA visitation declined at a slightly lesser rate than most NPS units in the same state and slightly more than those in the same region (See Figure 5). In the last two years CUVA has seen about a 5% growth in visitation each year.

Figure 6. Cuyahoga Valley National Park –Recreational Visitation Ten-year Trend



2015 Visitor Survey

According to the 2015 Visitor Use Study, 41% of visitor groups had two members and 32% were alone. Half of groups were visiting with their family. Forty-one percent of visitors were between ages 36 and 65, and 17% were 15 or younger. The majority of visitors were from Ohio (80%) while the others were from 36 other states. One percent of visitors were from other countries. Ninety-six percent of visitor groups were visiting Cuyahoga Valley NP as part of a day trip. Thirty-two percent of visitor groups visiting on a day trip spent 2 hours in the park and the average length of stay was 2.9 hours. Prior to this visit to Cuyahoga Valley NP, visitor groups most often used previous visits (65%), the park's website (37%), and friends/relatives/word of mouth (32%) for obtaining information. Ninety-five percent of visitor groups felt that they had the information they needed on this trip. Eleven percent did not obtain any information prior to visiting. Getting physical exercise was the most important reason for visiting the park for 38% of visitor groups. Being outdoors (92%), getting physical exercise (86%), and viewing wildlife or natural scenery (84%) were all considered important reasons for visiting. The most common activities included viewing scenery (59%), hiking/walking (58%), and taking a scenic drive/driving for pleasure (37%). Hiking/walking (29%) and bicycling (28%) were the primary activities in which visitor groups participated.

The most visited sites or trails in the park were the Towpath Trail (68%), the Boston Store Visitor Center (27%), and Brandywine Falls (26%). Fifteen percent of visitor groups rode the Cuyahoga Valley Scenic Railroad train on this trip. Fifty-four percent rode it on a previous trip and 36% had not at all. Generally, visitor groups to Cuyahoga Valley NP do not feel crowded; the majority of visitor groups (78%) reported not feeling crowded. Of those visitor groups that did feel crowded, the most commonly reported locations where they felt crowded were the Towpath Trail and Brandywine Falls. Eighty-nine percent of visitor groups are not likely to use a shuttle service to reach park destinations on a future visit, and 71% are not likely to combine a shuttle service with a ride on the Cuyahoga Valley Scenic Railroad train on a future visit.

Local Trends Impacting Congestion

While CUVA has been experiencing an increase in parking congestion, overall population in the area has not increased drastically. Within the 5-county region covered by NOACA, population has been relatively flat since 1990, and in 2010 stood at 2.1 million people (http://www.noaca.org/modules/showdocument.aspx?documentid=1103). The AMATS region is expected to experience a slight population increase (2.4%) over the 30 year period between 2010 and 2040. Most population growth will occur in the northern part of the region, between Cleveland and Akron (for more information, see http://amatsplanning.org/wp-content/uploads/AMATS-2040-Planning-Data-Forecast-Final-Draft.pdf).

Changes in parking congestion may be due to changing visitor use patterns. Historically, many park visitors used the park for driving and picnicking, and use was spread out over many locations where picnicking was available. With the construction of the Towpath Trail and the Bike & Hike Trail, as well as an increase in popularity in kayaking and canoeing, many more visitors are experiencing the park through active recreation. These activities often involve parking for several hours around the two "spines" of the park: the Towpath/Cuyahoga River and the Bike & Hike trails. The Cuyahoga Valley Scenic Railway contributes to this trend as well, as visitors may park to ride the train for several hours or a half day. Visitors are also choosing to frequent locations with amenities such as food, restrooms, and water fountains, further concentrating traffic at several locations such as Boston Store and Hunt House.

Previous Transportation Planning-Related Efforts

1976 General Management Plan
2006 Rockside Boarding/Parking EA
2008 Hike/Bike Trail EA
2013 Rail Study
2013 Trail Management Plan
2014 Transportation Goals; 2014 Transportation Goals (Staff Observations)
2016 Parking Task Memo (GAR Analysis)
2017 Parking Recommendations
2017 Rail Safety Study

Future Planning Needs Related to Transportation

Transportation Plan. In its Foundation Document, CUVA identified a Transportation Plan as a high priority planning and data need. This plan would examine the ways in which visitors travel to, through, and within the park, while looking at the scenic railroad and alternative transportation opportunities to minimize traffic, centralize parking, and allow visitors to access points of interest in the park.

Additional issues addressed would include: roads that could be removed, roads that could be expanded, roads that could be modified to support cycling, road standards for road improvements, and appropriate speed limits for the various park roads.

This is viewed as a high priority because the park is crisscrossed by numerous roads of varying scales that are not managed by the National Park Service. This often puts the park into a reactive mode when an agency having jurisdiction proposes changes to these roads that could impact park resources. It would be beneficial to the management of the park if a cooperative transportation plan could be developed that would outline the future management of these roads in a comprehensive manner with consideration being given to park values and resources that these roads pass through.

Visitor Use Management Plan. As the park continues to grow in popularity and as more communities desire to develop trail connections to the park, the park staff is becoming more aware of the importance of recognizing and managing for changes in visitor capacity. Many park resources may be beyond capacity, including portions of the Towpath Trail. To properly manage park resources, the park needs to identify visitor thresholds in many key geographic areas to protect the desired visitor experience. Monitoring impacts of use throughout the park, especially in areas where events and programs are held, is needed. Visitor use capacity is an area where the National Park Service would benefit from studies and associated mitigation measures, if and when capacities are met.

Unfunded Transportation PMIS			
PMIS	**Status**	**Title**	**Comments**
212172	Planned 2014	Develop preliminary transportation plan for Cuyahoga Valley National Park	*Region-Reviewed on 7-17-2014*

Recommendations for Congestion Management

NPS' Congestion Management Toolkit (www.nps.gov/transportation/pdfs/NPS-CMS_Toolkit.pdf) offers over 50 congestion mitigation tools specifically selected for NPS congestion conditions and concerns. Some tools are well-known (building parking, adding transit), other very effective tools are not as well known (managing circulation, posting traffic information on social media, special events management, etc.). The table below is designed to assist the park to understand what tools would be most effective based on the problems identified during the congestion assessment process. It also includes information important to help the park understand key issues related to implementation of each recommended tool.

The recommendations in this table complement CUVA's Parking Recommendations (GAR analysis) Memo, March 2017. These recommendations are based on the Congestion Management Toolkit and align very well with a Congestion Assessment process. Each recommendation is grounded in observations made by staff during the assessment process, transportation data, and information from previous plans and/or studies.

Assumptions used to develop the recommendations include:

- Only minor changes to parking supply are planned: Stanford Road will add 47spaces and replace horse trailer parking currently provided at Boston Store. Some new small parking for kayak drop off only may also be possible at the Northeast side of the Boston Mills Road Bridge (unpaved).
- Roads are owned and managed by local municipalities with a few minor exceptions; therefore roadway congestion is not a significant issue for park management.
- Frequency of rail may increase and additional trains may be added in peak season; no additional rail stops are planned.
- Recommendations shown below are designed to complement the CUVA Parking Recommendations: March 2017 report.
- Park-wide transit does not appear to be an effective tool for CUVA to manage parking congestion. Responses from the 2015 visitor study stated that 89% of visitors said they were uninterested in transit. Also, distances between parking lots (which translates into very high costs), specificity of visitor activities by site (a visitor who wanted a destination at a Bike/Hike parking area would be unlikely to want a long bus ride to other destinations). Local transit services already provide service within a few blocks of Lock 39 and one mile of the Bike & Hike trail parking lot.

- Cultural landscapes and historic districts require design and operational sensitivity. For these areas, recommendations related to lighted electronic signs, expanding the pavement footprint, or changing facilities may not be appropriate:
  - Boston Mills Historic District
  - Virginia Kendall State Park Historic District
  - Jaite Mill Historic District
  - Everett Historic District
  - Peninsula Village Historic District

If CUVA staff wish to implement or test any of these recommendations, key contacts for funding, development of PMIS, etc. are:

***Regional Federal Lands Transportation Program Coordinator**:* Bob Kammel, MWR Transportation Program Coordinator, 402-661-1730

***Park Point of Contact**:* Lois Neff, Safety and Occupational Health Manager, Cuyahoga Valley National Park, 440-546-5907

Reference: Cost/Timeframes for Implementing Congestion Tools

	COST RANGE		**TIMEFRAME**
Low:	$0-$50,000	**Immediate:**	Less than 1 year
Medium:	$50,000-$100,000	**Near-Term:**	1-3 years
High:	$100,000-$500,000	**Long-Term:**	4 years or longer
Highest:	Over $500,000		

CONGESTION MANAGEMENT TOOL (from NPS Congestion Management Toolkit)	WHAT SPECIFIC PARK PROBLEMS WOULD THIS TOOL ADDRESS?	COST/ TIMEFRAME	IMPLEMENTATION ISSUES	IMPLEMENTATION NEXT STEPS
EXPAND PARKING SUPPLY Overflow parking on roadway shoulders and in "no parking" areas can be a source of congestion. In some cases, parking management and/or promoting the use of park and ride facilities can lessen this impact, but in others, the best option may be to increase parking supply.	"Right size" parking for smaller lots that do not have capacity or resource concerns, or restripe larger parking areas to improve parking efficiency. Suggest this strategy be very limited and carefully aligned with visitor use goals. Avoid adding parking in areas that are already over-crowded ("if you build it, they will come").	Cost: Higher Timeframe: Longer Term	PMIS needed? Yes if paving is proposed EA/EIS needed? EA or Cat X Suitable for a pilot project? Yes, if unpaved areas are used	Expanding parking includes restriping to increase the number of spaces using existing pavement, using unpaved areas of previous disturbance, and/or minor paving expansions. The park may want to combine restriping and additional parking in some locations. Use caution about adding parking at train stops due to safety and potential increases to time for train to enter/depart from station, and near the river due to resource impacts. Potential locations for restriping: Brandywine (angle parking with one-way circulation), intersection of Boston Mills Road and Akron-Peninsula Road. Potential locations for additional parking to "right size": Blue Hen Falls, Bike & Hike Trailhead, and the intersection of Boston Mills Road and Akron-Peninsula Road.
WEBCAMS Webcams provides real-time information on parking congestion, for park staff and visitors (if posted to a website).	Visitors coming to the crowded (red) hotspots would have information about crowding before they arrive at crowded areas, allowing them to choose less crowded parking areas.	Cost: Low Timeframe: Near Term	PMIS needed? No EA/EIS needed? No Suitable for a pilot project? Yes	Webcams can be purchased over the counter, and located in unobtrusive areas. Requires minimal IT support to link feed from webcams to park website, along with periodic maintenance of software and hardware upgrades. Privacy issues are important and webcams should be placed where license plate numbers and visitor faces are not being shown. Multiple parks have webcams
DYNAMIC/VARIABLE MESSAGE SIGN (DMS/VMS) Dynamic/Variable message signs (both portable and permanent) are used to provide en-route information and alerts to visitors. DMS/VMS signs are very common on roadways, particularly to redirect traffic during construction or special events.	Portable VMS are electronic sign boards used to inform visitors in advance about crowded parking conditions and redirect them to less crowded parking nearby. Particularly useful for special events (see below)	Cost: Low to Medium Timeframe: Near Term	PMIS needed? Yes if signs will be purchased (no if they will be leased, which is common) EA/EIS needed? No Suitable for a pilot project? Yes	Messages can be pre-programmed in advance and changed as often as needed. VMS come with their own electrical power. They could be deployed throughout the summer months at the "red" hotspots, used for special events, or both. VMS would likely be most effective if deployed in a "district" fashion, are shown below: - Terra Vista/Canal Exploration Center (Terra Vista would need to be expanded and lined to accommodate overflow traffic) - Red Lock/Jaite Wayside - Lock 29 and Overflow, and Deep Lock Quarry - Happy Days N/S, V. Kendall Lake, Octagon, and Ledges - Everett Covered Bridge/Hunt House/Hale Farm, Indigo Lake, Ira and Botzum CUVA would need to work with the local municipalities who own and manage roads to

CONGESTION MANAGEMENT TOOL (from NPS Congestion Management Toolkit)	WHAT SPECIFIC PARK PROBLEMS WOULD THIS TOOL ADDRESS?	COST/ TIMEFRAME	IMPLEMENTATION ISSUES	IMPLEMENTATION NEXT STEPS
				deploy this solution (even temporary use of VMS would likely require right-of-way permits).
ENFORCEMENT / TRAFFIC MANAGEMENT Specifying the road shoulder as a no-parking area through clear signing, striping, and/or additional enforcement will improve traffic flow and safety.	Enforcement would address parking outside areas specified for parking.	Cost: Low Timeframe: Near Term	PMIS needed? No EA/EIS needed? No Suitable for a pilot project? Yes	Enforcement is already occurring in some park locations like Blue Hen Falls. Consider adding it periodically Brandywine and Boston Store and Overflow, and Lock 29. Work with local authorities to enforce "no parking" signs (or 2 hours or less parking) on the roadside outside Brandywine and install no parking signs or and log/boulder edging at Red Lock. Work with local law enforcement to patrol Brandywine Road on busy weekends. Consider towing services.
SPECIAL EVENT MANAGEMENT Special event / traffic incident management is about integrating planned park events (including special use permits) with incident command management to integrate multiple park operational tools that often involve Law Enforcement responsibilities.	CUVA hosts an unusually high number of special events which often result in congestion at already crowded locations. Special use permits could be used to directly influence visitor use patterns, reduce congestion, improve visitor experience and promote more manageable park operations; work with special use permit management team.	Cost: Medium to Timeframe: Near Term	PMIS needed? No EA/EIS needed? No Suitable for a pilot project? Yes	Eliminate special use permits at "red" hotspots; reduce the number available at yellow hotspots and redirect special events to underused "green" areas to shift visitor use patterns. Create annual special use permit calendar The park could require special events at red/yellow hotspots to provide active traffic control and specify an alternative parking site if event fills up. Consider adding mobile visitor amenities like food trucks and port-a-potties to special events at the underused parking areas. Large scale special events: (large crowds, 4 or more hours long) consider all of the above **plus**: work with local contractors and/or transit agencies to provide transit services to/from a remote location, and/or working with local rideshare (Uber, Lyft) and taxi companies. Consider renting VMS signs (see recommendations for Dynamic/Variable Message Signs).
PARKING MANAGEMENT Parking management is a coordinated, park-wide approach about to how to more evenly distribute visitation and focus park operations, without large-scale parking additions. It covers operational and capital projects, and may also integrate special events.	CUVA's transportation management issues are almost entirely related to parking, so a parking management plan could be created done in lieu of a transportation plan – and this approach would be cheaper and faster.	Cost: Low-Medium Timeframe: Near – Mid Term	PMIS needed? Maybe, depending on level of effort EA/EIS needed? An EA may be needed if parking areas would be	A parking management plan could be built on the solid framework of the CUVA 2017 Parking Recommendations / GAR analysis. See table below labeled "CUVA Integrated Visitor Use / Congestion / Parking Management Framework." Implement a "one in, one out" policy when large parking lots (Brandywine, Boston Store for example) are full would prevent vehicles from circling to look for spaces, and could encourage visitors to go to other, less congested areas.

CONGESTION MANAGEMENT TOOL (from NPS Congestion Management Toolkit)	WHAT SPECIFIC PARK PROBLEMS WOULD THIS TOOL ADDRESS?	COST/ TIMEFRAME	IMPLEMENTATION ISSUES	IMPLEMENTATION NEXT STEPS
	A parking management plan would integrate most of the recommendations in this table together, and combine them with the 2017 Parking Recommendations.		permanently closed to visitors, or if there are recommendations to add fees, etc. Suitable for a pilot project? Yes	Time limits: consider time limits (combined with enforcement) at the "red" hotspots, calibrated to 2015 visitor study findings (average visit is 2-3 hours). For short-term areas, consider 2 hours or less, for long-term areas, up to 4 hours. Consider hiring a parking management contractor (or trained volunteers) to managed traffic and parking in locations like Boston Store and Brandywine on weekends during the middle of the day. Consider parking reservations at some of the red hotpots.
TRAFFIC CALMING Traffic calming is used to slow traffic down for safety reasons, such as slowing vehicles down in high-use pedestrian areas. Some common traffic calming measures include traffic humps, narrower travel lanes and islands and medians.	Passively encourages slower speeds to improve safety, particularly in areas where high traffic speeds and pedestrian areas inter-mix.	Cost: Medium to High Timeframe: Medium	PMIS needed? Possible EA/EIS needed? Cat X likely, possible EA Suitable for a pilot project? Yes	Work with local municipalities to explore traffic calming at the Boston Mill Road @ Blue Hen Falls crossing. Techniques could include: - Advance warning signs about pedestrian activities in the area - Speed humps before the crossing - Rapid Rectangular Flashing Beacon (pedestrian activated) - Narrow striping - Addition of pedestrian "refuge" islands - Flexible bollards - Combination of above The success of this technique is partly related to road design and sight distance, and frequency of use by pedestrians. To reduce speeds on local roads, lowering the speed limit alone is not usually effective – consider low solutions that would visually narrow the roadway in key areas.
ENCOURAGE VISITATION TO LESS CONGESTED AREAS Encouraging visitors to go to attractions in less congested areas can decrease congestion and increase visitor experiences.	Congestion in parking lots along the towpath and other popular areas such as Boston Store and Brandywine Falls could be alleviated by encouraging visitors to go to less crowded areas of the park.	Cost: Medium Timeframe: Near to Mid-term	PMIS needed? No EA/EIS needed? No	Consider adding/changing visitor facilities amenities at underused parking areas to encourage visitation to underused areas outside the central "spine" of the river, railroad and Towpath. To temporarily provide amenities at certain areas, consider testing food trucks – for example, at Virginia Kendall or the Canal Exploration Center. Could offer tours (e.g. moonlight hikes, wildflower walks, and guided bike tours) in

CONGESTION MANAGEMENT TOOL (from NPS Congestion Management Toolkit)	WHAT SPECIFIC PARK PROBLEMS WOULD THIS TOOL ADDRESS?	COST/ TIMEFRAME	IMPLEMENTATION ISSUES	IMPLEMENTATION NEXT STEPS
	Also limit the number of people allowed for park tours like Moonlight Hikes and/or have reservations in advance.		Suitable for a pilot project? Yes	underused areas such as Canal Exploration Center, Virginia Kendall etc.).
MEDIA/SOCIAL MEDIA/MOBILE DEVICE APPS With smart phones rising in popularity, the use of social media (e.g., Facebook, YouTube, Twitter, Flickr, Tumblr, Instagram, blogs, and other programs) and mobile device apps have also become acceptable low cost ways to provide information.	Encourage visitors to go to less congested areas of the park by informing visitors about the congestion and promoting these alternative areas to visit. The park website could highlight "hidden gems" like the Canal Exploration Center rather than traditional places like Boston Store.	Cost: Low to Medium Timeframe: Immediate to Near Term	PMIS needed? No EA/EIS needed? No Suitable for a pilot project? Yes	Determine which locations to promote on social media, and which locations to de-emphasize or promote. Encourage arrival at the park before 10am and after 4 pm. Promote transit and rail access to CUVA. Work with park partners who use social media to promote the park to provide a consistent message and see which parts of the park they are promoting and which are "hidden gems."
PARKING FEES Create/adjust parking fees by increasing costs at congested/ high-utilization times or decreasing costs during non-congested times can encourage visitors to visit the parks during off-peak periods, adjust their visitation times, or to use alternative modes of transportation.	Fees can be leveraged to regulate the flow of visitation to crowded areas without adding more park spaces – and would likely encourage visitors to travel to less congested/free locations. Could combine with time limit parking (to encourage parking spaces to turnover more quickly). Explore only if other strategies are not successful and impacts continue; would likely require new fee authority and public outreach.	Cost: Medium to High Timeframe: Mid-Long Term	PMIS needed? Maybe EA/EIS needed? Maybe Suitable for a pilot project? Yes Other: contact Regional Transportation Coordinator and Regional Fee Manager for more information about the process to implement parking fees	Fee areas are limited at CUVA, so this tool has limited use. In addition, the cost of fee collection menus that the parking lot would likely need 50 or more spaces to break even with cost of installation, repair and collection. Consider parking meters (assumes there are no cultural landscape or security issues)or a fee station at the following locations: - Rockside/Lock 39 - Station Road Bridge - Boston Store - Lock 29 Overflow A feasibility study would be needed to explore fee issues, cost of installation/repair/collection vs. potential revenues, gather public input, and evaluate potential fees given the market in the Cleveland/Akron area. If this tool is used "unintended consequences" need to be carefully considered, since visitors may simply park on the roadside outside the designated parking area.

CONGESTION MANAGEMENT TOOL (from NPS Congestion Management Toolkit)	**WHAT SPECIFIC PARK PROBLEMS WOULD THIS TOOL ADDRESS?**	**COST/ TIMEFRAME**	**IMPLEMENTATION ISSUES**	**IMPLEMENTATION NEXT STEPS**
PROMOTE BICYCLE AND PEDESTRIAN ACCESS (INCLUDES BIKE SHARING) Promoting bicycle and pedestrian access can be done by (1) marketing, (2) providing necessary facilities, (3) providing incentives/promotions, and (4) through national programs.	Adding bike share or bike rentals in underused areas of the park could help direct visitors who desire slower recreational cycling experiences to underused areas.	Cost: Medium to High Timeframe: Mid-Longer Term	PMIS needed? Yes if capital facilities proposed EA/EIS needed? Yes if capital facilities proposed Suitable for a pilot project? Maybe	Offer family-oriented cycling experiences that complement the regional cycling on the regional trails may bring help disperse demand for cycling. To further promote the area for family cycling, services like food trucks could be tested. Consider additional in-park connections (paved or unpaved) between the Towpath and Bike-Hike Trail in the Virginia Kendall area) to connect underutilized parking areas to these popular facilities. Promote quiet, uncongested family bike-riding opportunities outside the Towpath/Bike-Hike Trails.

RELATED NPS TOOLS AND DESCRIPTION	WHAT PARK PROBLEMS WOULD THE TOOL ADDRESS?	COST/ TIMEFRAME	IMPLEMENTATION ISSUES	IMPLEMENTATION STEPS
VISITOR USE MANAGEMENT Managing visitor access and use for congested parks is complex. A solid understanding of the number of visitors and where they go, what they do, related impacts, and potential tools (such as indicators, thresholds and monitoring) /strategies for managing those impacts may be beneficial for park management and partners.	A Visitor Use Management Plan could help the park determine where to best focus visitation to reduce congestion, and protect resources and visitor experience and park operations.	Cost: high-highest Timeframe: Mid-Longer Term	PMIS needed? Yes EA/EIS needed? Yes Suitable for a pilot project? No More information at NPS Visitor Use Management Framework visitorusemanagement.nps.gov	In lieu of a transportation plan (likely not needed for CUVA since the sole focus is parking, and that can be handled by smaller level of effort - a parking management strategy/plan) a visitor use management plan would provide CUVA with social science tools to complement congestion management tools. For more information, please contact Kerri Cahill, DSC Planning at 303 969-2261, kerri_cahill@nps.gov.

Potential Framework: Integrated Visitor Use / Congestion / Parking Management Strategy												
	Existing conditions						**Active visitor use/ travel demand management**			**Changes to parking operations & infrastructure**		
CUVA Hotspots	**RR stop?**	**Towpath or Bike and Hike access?**	**# of special use permits**	**Visitor activities at/near site**	**Impacts: resources, safety, park ops**	**Capacity concerns?**	**Allow special events?**	**VMS? (lots nearby that could accept overflow)**	**Parking fees?**	**Changes to parking ops / circulation?**	**Add/ restripe parking?**	**Possible modifications to March 2017 CUVA Parking Recommendations Technical Memo**
Rockside	Yes	Yes	2	Restaurants adjacent		During special train programs	Limited, re-direct special events to Canal Exploration Center	Possibly work with nearby property owners to direct to private lots during special events.	No	No	Restripe	
Lock 39	Yes	Yes		Restaurants across street - shared lot with Cleveland Metro	This lot is experiencing an increase in criminal activity	Often full. Sometimes used by restaurant employees for parking	Open for special events only	Only during special events	Possible - fee area	Yes	No	In coordination with Cleveland Metroparks eliminate ingress/egress to Rockside Rd. due to safety concerns, or only allowing it to open for limited special events. Add bike/ped amenities.
Terra Vista	No	Indirect		No formal trails exist at Terra Vista. Small fishing pond is attraction, thus the minimal un-improved parking lot.	Vandalism	No	No	Yes, adjacent church parking lot could be used as overflow for special events/large volunteer groups with permission	No	Yes	Yes	None; agree with park plan to formalize existing spaces to maximize area available for parking.

				Some off the beaten path hikes/programs take place here.								
Frazee House	No	Yes				Parking lot is small but many towpath trail visitors park along Canal Road adjacent to towpath trail if space is available; they prefer to park along the shoulder instead of at Frazee House, where they have to cross the street to get to the towpath.	No	No	No	No	Yes	Depending on level of use and distance to Towpath, this lot may need to be "right-sized" and due to proximity to Towpath could provide congestion relief to other more popular locations. Consider working with municipalities to improve safety of road crossing to Towpath.
Brecksville / Station Road Bridge	Yes	Yes	6	Trail connection to nearby Cleveland Metropark's Brecksville Reservation (hikers, bikers and equestrian)	Safety concerns at railroad crossing. Lighted stop signs at tracks; no rail gates (yet) with signals. Cars often cross in front of train; several near misses last year.	This is the largest parking lot for towpath trail access; on busy weekends it's near capacity. Overflow would be in the nearby Brecksville Reservation.	Yes - often used for special events as it can handle a lot of capacity.	Yes (redirect to Brecksville reservation)	No	No	Yes	Southern edge could be striped to add additional parking. Angled parking may increase efficiency, but previous experiments with angled parking at this location were not successful.
Red Lock	No	Yes		Brandywine Ski Area is across the street	Parking along road shoulder interferes with line of sight for pedestrian crosswalk. Vehicles approaching crosswalk are	Always full on weekends and often after work crowd	No	Maybe, consider redirecting traffic Jaite parking areas	No	No	Yes, "right size" parking to reduce on-road parking	

					at 45 mph. Additionally, there is a primitive kayak access point across the street from Red Lock on the South/east side of Highland Road. Kayakers are dropping off/picking up boats in the old Jaite Mill access lane (adjacent to the towpath). Once the Jaite Mill is removed and restoration occurs, there could be some room for a small parking lot on the south side of Highland Rd.							
Brandywine	No	Yes	7		Safety in parking lot as Bike/Hike trail enters/exits area into the parking lot. Visitors parking on vegetation; removing barriers to park; parking on adjacent roadway, both sides;		No	Bike-Hike trailheads outside of park.	No	Yes	Restripe	Restripe to angled parking and one-way loop.

Stanford House	No	Yes, access to Towpath from trail connector directly across from Stanford House		Campground behind Stanford House		Stanford House is a rental space and is often full for this use; campground is "hike in"	No	Boston Store Overflow	Possibly	No	Park adding some parking where road will be turned over to Park.	Ongoing expansion plan could consider accommodating overflow from Brandywine Falls and Boston Store.
Boston Store	Yes	Yes	7	Main Visitor Center; kayak access; Trail Mix Store (food); Volunteer Center; MD Garage (Art Gallery space)	Pedestrian circulation - safety issues		Limit permits. Relocate Tow Path-related SUP's to other sites	Boston Overflow, future lots proposed for this area in the 2017 parking study. Proposed Stanford Parking would alleviate some traffic in the area.	Possibly	Yes	Yes, as part of new VC site plan	Consider long-term connectivity between Boston Store lot and overflow lot (even after parking expansion at Boston VC). It would introduce occasional vehicle across bicycle right-of-way on Tow Path, but would eliminate the need for cars to exit one lot to search for space in the other via Boston Mill Road. Overflow lot could be formalized to control vehicle movement and spaces.
Boston Overflow	Yes	Yes	7	Towpath access; visitor center access; bike program for kids gathers in this lot during summer	Congestion; pedestrian circulation; historic district		Limit permits. Relocate Tow Path-related SUP's to other sites	Boston Store, future lots proposed for this area in the 2017 parking study. Equestrian-use vehicle parking proposed to relocate to future lot at Stanford House.	Possibly	Yes	Formalize parking with stabilized turf to reduce impervious paving and impact to district	See above

Bike & Hike	No	Yes					No	Informal parking across Boston Mill Road	Possibly	No	Yes, right-size parking	Careful development of this lot and the gravel overflow could serve to alleviate congestion at Brandywine Falls and provide access to the Bike Hike Trail. Consider developing an overflow lot further south that will have access to Bike Hike Trail. Existing building onsite is being demolished. Additional parking being considered for this area along Akron-Peninsula Road for access to future mountain bike trails.
Blue Hen Falls	No	No	1	Pedestrian crossing; impacts to natural resources from over use by visitors; overcrowding of area	Always full		No	Parking at Boston Mills Ski Area and hike to the Blue Hen Falls via the Buckeye Trail	No	No	Yes, formalize	Consider closing both existing informal lots and access drives. If a lot is deemed necessary, relocate to the east (away from the curve) along north side of road (since most users appears to be headed that way). Since some users will still look to go south on the Buckeye Trail, consider the other safety measures mentioned in the parking study in conjunction with a new lot/crosswalk.
Lock 29	Yes	Yes	4	Train depot; restaurants; shops; kayak access.	Safety with train crossing; pedestrian circulation	Always full	Limit	Lock 29 Overflow, Deep Lock Quarry; additional parking available at church on Main St. in Peninsula (fee)	Possibly	No	No	Instead of eliminating parallel parking on south side, use excessive width of one-way drive aisle to restripe for parallel parking, a more narrow

												drive aisle and still have room for a pedestrian path along the south side of the restriped parallel spaces. Address issue of restaurant patrons and employees parking in this by adding signage and/or enforcement.
Lock 29 Overflow	Yes	Yes	4	Train depot; restaurants; shops; kayak access.	Pedestrian circulation issues with train and getting from Overflow Lot to the towpath without a designated trail/sidewalk. ...visitors walk along the railroad tracks and ballast Bike/pedestrian conflicts for the entire Lock 29 area.		Limit	Lock 29, Deep Lock Quarry	Possibly	Yes	Yes, formalize	Formalize parking to control space delineation and circulation. Since this is a gravel lot, use bumper blocks or split logs to designate spaces.
Happy Days North	No	No		Trailhead parking for Boston Run Trail		Yes, when Happy Days has special event and lot is already being used by park visitors unrelated to the event	Limit size of events at Happy Days Lodge	Direct non-event- related overflow to Virginia Kendall Lake, Octagon, Ledges	No	No		
Horseshoe Pond	No	No				Small lot; often full	Reduce/ eliminate	No				Due to small lot size, limit programs to off-peak hours.
Everett	No	No	12				No	Yes, as part of district with				Develop VMS staging

Covered Bridge								Hunt House, Hale Farm, Indigo Lake, Ira, Botzum				plan to sequence where in the district to send visitors when lot is full.
Hunt House (includes Hunt Farm)	No	Yes		Szalay's Sweet Corn Farm Market draws big crowd in summer; in fall corn maze and pumpkins. Visitors using Hunt House parking to access this market. Pedestrians on road; congestion			Reduce if possible	Yes, as part of district with Everett Covered Bridge, Hunt House, Ira, Indigo Lake, Ira, Botzum				Develop VMS staging plan to sequence where in the district to send visitors when lot is full. Consider one in, one out policy when lot is full to minimize circling. Current hammerhead parking lot at Hunt House has room for another bay to be built. It was designed for future expansion if funding allowed.
Indigo Lake	Yes	Yes	2	Hale Farm is connected to towpath and train stop via bike path and tram ride	Originally designed as a temporary lot		No	Yes, as part of district with Everett Covered Bridge, Hunt House, Hale Farm, Ira, Indigo Lake, Botzum	Possibly			Develop VMS staging plan to sequence where in the district to send visitors when lot is full.
Ira	No	Yes		Howe Meadow (large special events site) is across the street			Reduce/ eliminate	Yes, as part of district with Everett Covered Bridge, Hunt House, Hale Farm, Indigo Lake, Ira, Botzum	Possibly			Develop VMS staging plan to sequence where in the district to send visitors when lot is full.
Green hotspots (sample				Canal Exploration Center			Promote special event use				No. Monitor use of this area after	Offer additional bike/hike amenities to this site and strongly promote special events

only) Canal Exploration Center	Yes	Yes	No					No		No	additional parking is done.	here (reach out to local cycling groups and offer to host an event here to promote awareness of the site, post on their social media pages, etc.) and offer information about how to find this location. Promote natural resource features and interpretive experiences available for families within a short walk of the VC. Consider adding bike rentals/bikeshare stations. Lead more tours from this location. Promote opportunity to walk to aqueduct.

Next Steps

Within 60 days of the final report, the Congestion Assessment team will contact meet with the park point of contact and region to discuss how to implement the park's high and medium priority congestion mitigation recommendations.

Park support for development of PMIS statements, field support and testing, potential funding resources, data collection/analysis and other implementation activities is available from your regional transportation program coordinator. Technical assistance is available from NPS' Denver Service Center Transportation, FHWA's Federal Lands Highway Division, the Volpe National Transportation Systems Center, and/or private sector consultants.

Attachment 1: CUVA Congestion Assessment Participants and Dates

Attachment 1:

CUVA Congestion Assessment Participants and Dates

The Congestion Assessment for CUVA was conducted via webinar and conference call on three dates:

- Call 1: April 27, 2017
- Call 2: May 17, 2017
- Call 3: June 27, 2017

The Assessment Team included representatives with a variety of skills and backgrounds, including:

Cuyahoga Valley National Park: Josh Donathan, Maureen Finnerty, Craig Kenkel, Lois Neff, Kim Norley, Meg Plona, Nick Pulfer, Joe Simkanin, Paul Stoehr

Denver Service Center: Guy Headland, Zak Wood

Washington Transportation Office: Linda MacIntyre

Volpe National Transportation Systems Center: Amy Plovnick