

Projects Matrix

Implementation

Achieve substantial ridership increases through incremental improvements in partnership with community organizations

Projects Matrix

Category	Project	Supporting Organization	Timeline	Cost	Priority Level	Potential for Pilot
Boarding Policies	Implement proof-of payment with fare inspectors		Fall 2020 Semester	Net-positive	Very High	Yes
	implement all-door boarding		With proof-of payment	Revenue-generating	Very High	Yes
	Potentially upgrade Automatic Passenger Counters		Before proof-of-payment	Low capital cost	Medium	
	Reduce farebox-necessary payment		With proof-of payment	Neutral	High	Yes
	Create a fare-free zone on campus and downtown		With- or after proof-of-payment	Revenue-generating	High	Yes
Bus Layout	Remove two seats from existing 40 foot buses		Short-term	Low capital cost	Medium	Yes
	Purchase new buses with more open space and fewer chokepoints, low windows, and rear doors which slide out and to the side		Medium-term	Neutral	High	
	Purchase 3 door 40 foot buses, eventually with a door at the rear end	Bus Manufacturers	Long-term	Medium additional capital cost	Very High	
	Purchase 4-5 door articulated buses		Medium-term	Low additional capital cost	High	
	Increase capacity by creating announcements and by folding aisle-facing seats		Short-term	Neutral	High	Yes

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Bus Layout	Track and reduce the amount of time Loop buses spend as discharge-only		Medium-term	Net-positive	Medium	
	Add stop request buttons to poles		Medium-term	Low capital cost	Low	
	Purchase automatic wheelchair securement devices		Long-term	Medium capital cost	Low	Yes
	Explore vertical bike racks in articulated buses		Long-term	Low additional capital cost	Low	Yes
	Explore electric powered buses for new purchases	Penn State State College Borough	Long-term	Neutral to low net-positive	Medium	
Travel Infrastructure	Equip buses with bus-mounted enforcement cameras	Local and state legislatures	Medium-term	Net-positive	Very High	Yes
	Create bus stops at Rec Hall in both directions and southbound at the Walker Building	PennDOT	Fall 2020 Semester	Net-positive	Very High	Yes
	Create a pedestrian corridor through Rec Hall to access central campus	Penn State	Medium-term	Low capital cost	High	
	Implement transit signal priority on Burrowes Rd, College Ave, Beaver Ave, and select other intersections	PennDOT	Short-term	Low capital cost	Very High	
	Relocate stops to the far side of intersections, especially at the Walker Building and along Atherton St	All partner organizations	Medium-term	Low capital cost	High	Yes
	Install queue jumps at College and Allen and select other intersections	All partner organizations	Short-term	Low capital cost	High	Yes
	Create bus lanes at Pattee Transit Center	Penn State	Short-term	Net-positive	Very High	Yes
	Expand bus lanes along Curtin Rd	Penn State	Short-term	Net-positive	High	Yes

Category	Project	Supporting Organization	Timeline	Cost	Priority Level	Potential for Pilot
Travel Infrastructure	Expand bus lanes to Allen Rd and explore options for Park Ave	Penn State PennDOT	Long-term	Net-positive	Low	Yes
	Create curbside bus lanes on College Ave and Beaver Ave	PennDOT State College Borough	Medium-term	Net-positive	High	Yes
	Create curbside bus lanes on Atherton St	PennDOT State College Borough Ferguson Township Penn State	Medium-term	Net-positive	Medium	Yes
	Create and market an Atherton Hub		Medium-term	Neutral	Medium	Yes
	Create transitway on College Ave or Beaver Ave	PennDOT State College Borough	Long-term	High capital cost	High	Yes
	Create the Atherton Transitway	PennDOT State College Borough Ferguson Township Penn State	Long-term	High capital cost	High	Yes
	Continue the Atherton Transitway through downtown and south	PennDOT State College Borough	Long-term	High capital cost	Medium	Yes
	Remove on-street and surface parking to remove all local traffic and encourage transit use	Penn State ¹²³ State College Borough	Ongoing	No additional cost	High	
	Build large classroom buildings near major bus stops	Penn State ¹²³	Ongoing	No additional cost	Very High	
	Rezone and redevelop lots near high-frequency transit, including along Atherton on the golf courses and through College Heights	State College Borough ¹²³ Penn State Surrounding Municipalities	Ongoing	Revenue-generating	Very High	

¹²³ These projects would be led by organizations other than CATA.

Category	Project	Supporting Organization	Timeline	Cost	Priority Level	Potential for Pilot
Network Changes	Combine Red Link and Campus Shuttle services into two Red Link branches	Penn State	Fall 2021 Semester	Net-positive	Very High	Yes
	Reroute Red Link service through the Old Railroad Grade and add revenue hours from Green Link	Penn State State College Borough	Fall 2021 Semester	Net-positive	Very High	
	Create a stop at the Greenway near the Business Building to replace the Camps Shuttle stop	Penn State	Fall 2020 Semester	Net-positive	Medium	Yes
	Reroute Blue and White Loops along Stadium Dr and through a future mixed-use extension of downtown	Penn State State College Borough	Long-term	Net-positive	High	
	Reroute the White Loop through the Atherton Transitway and a transitway on College Ave or Beaver Ave		Long-term	Revenue-generating	Medium	Yes
	Connect the Old Railroad Grade with College Ave to create a unified corridor	Penn State State College Borough	Long-term	Net-positive	Low	
	Connect the Hospital to Porter Rd to remove the current Hospital detour	Penn State	Long-term	Low additional capital cost	Low	
	Advertise interlined RC/WE service along Atherton St		Fall 2019 Semester	Revenue-generating	High	Yes
	Interline VE/RC, NE/UT, and WE/HC routes and brand as three routes		Fall 2020 Semester	Revenue-generating	Very High	Yes
	Remove the VE/RC loop through Pattee Transit Center with the addition of a stop at Rec Hall		Fall 2020 Semester	Revenue-generating	Very High	Yes
	Extend NE/UT service to the Mall rather than to Bellaire Ave		Long-term	Medium additional operating cost	Medium	Yes

Category	Project	Supporting Organization	Timeline	Cost	Priority Level	Potential for Pilot
Network Changes	Increase trunk and adjunct route frequencies		With articulated buses	Medium additional operating cost	High	
	Expand adjunct route service frequencies and spans to create a full adjunct network		Long-term	Low additional operating cost	High	Yes
	Reschedule other routes on 40 minute and irregular schedules to consistent headways which repeat on the hour		Medium-term	Neutral	Medium	Yes
	Reroute the N corridor through the future Patton Crossing development and Park Forest Apartments	Patton Crossing developers, ¹²⁴ Park Forest Apartments owners	With Patton Crossing, long-term	Net-positive	High	Yes
	Reroute W, WE, NV, and VN service through the new Pine Hall development	Pine Hall TTD developers ¹²⁵	With Pine Hall, medium-term	Net-positive	High	Yes
	Reroute the KP route on Circleville Rd and Science Park Rd, alter F service, and eliminate S service		With Pine Hall, medium-term	Neutral	Medium	Yes
	Reroute service to Bellefonte via I99 or Route 550	Patton Township ¹²⁶	Medium-term or with Patton Twsp development	Revenue-generating	Medium	Yes
	Increase frequency of XB and XG routes to hourly		Medium-term	Net-positive	Medium	

¹²⁴ Penn Terra Engineering, Inc., "Patton Crossing Master Plan," Patton Township, June 24, 2019, sheet 5.

¹²⁵ LandDesign, "Pine Hall Traditional Town Development General Master Plan: Phasing Plan," Ferguson Township, February 15, 2018.

¹²⁶ Penn Terra Engineering, Inc., "Nittany Valley Sports Centre Revised Master Plan #3," Patton Township, May 31, 2019.

Category	Project	Supporting Organization	Timeline	Cost	Priority Level	Potential for Pilot
Network Changes	Remove the loop through Park Forest on the A route, and consider extending it toward Gray's Woods		Fall 2020 Semester	Revenue-generating	Low	Yes
	Shrink or eliminate the loop through Boalsburg on the B route		Fall 2020 Semester	Revenue-generating	Low	Yes
	Add stops for the adjunct network near commercial centers to bypass parking lot detours		Spring 2020 Semester	Revenue-generating	High	Yes
	Add additional stops at the Park on the W and WE routes and at The View/The Valley on the HC route		Spring 2020 Semester	Revenue-generating	Medium	Yes
	Create pedestrian and bike connections between Bellaire Ave and College Ave, Atherton St and Martin St, Galen Dr and Valley Vista Dr, Bayberry Dr and Southgate Dr, future Patton Crossing development and Park Ln, Premiere Dr and Benner Pk, and the Oakwood Ave loop	Centre Regional Planning Agency	Short-term	Low capital cost	High	
	Create pedestrian and bike connections between Barnstable Ln and Science Park Rd, The Landings and Sylvan View, Westway Gardens and Shamrock Estates, Fox Hollow Rd and Woodledge Dr/The Village, and Greenleaf Manor and Northwick Blvd	Centre Regional Planning Agency	Medium-term	Low capital cost	Low	
Network Legibility	Roll out new system maps online, on mobile apps, in buses, at stops, and with community partners		Fall 2019 Semester	No additional cost	Very High	Yes
	Update route color schemes on map and bus locator apps		Fall 2019 Semester	Neutral	High	
	Roll out new stop info panels online and at stops, with 6" x 24" panels		Fall 2020 Semester	Low additional capital cost	High	Yes
	Create the necessary infrastructure to automate the process of updating stop info signs from GTFS data		Before stop info panel rollout	Net-positive	High	

Category	Project	Supporting Organization	Timeline	Cost	Priority Level	Potential for Pilot
Network Legibility	Transition official stop names to names of major destinations		Ongoing	Neutral	Medium	
	Add route stickers to Community Service bus stops		Fall 2020 Semester	Low capital cost	Low	Yes
	Upgrade bus location trackers to move smoothly		Short-term	Low capital cost	High	
	Use the frequent network to help plan dense, mixed-use development and help students make informed decisions about apartment locations	Penn State State College Borough Surrounding Municipalities Apartment landlords	Ongoing	Revenue-generating	Very High	
Organization Cooperation	Create truly unlimited apartment passes and phase out corridor passes	Apartment landlords	Fall 2020 Semester	Net-positive	Very High	Yes
	Encourage all existing and new developments to include transit passes in rent	State College Borough Surrounding municipalities	Ongoing	Revenue-generating	High	
	Incentivize downtown developers to pay for transit by eliminating parking requirements	State College Borough	Short-term	Revenue-generating	Very High	
	Create guidelines for event road closures and temporary bus lanes	Penn State State College Borough	Short-term	Revenue-generating	High	Yes
	Create an ordinance which requires CATA's approval for road closures	State College Borough	Medium-term	Revenue-generating	Medium	
	Negotiate with Penn State to allow Loops to serve their normal routes during football games	Penn State	Short-term	Net-positive	High	Yes
	Negotiate with Penn State to use the Blue Loop as the Parents' Weekend Trolley	Penn State	Medium-term	Revenue-generating	Low	Yes
	Adopt a priority merge rule and post signs at bus pull-offs	All partner organizations	Short-term	Net-positive	High	Yes

Category	Project	Supporting Organization	Timeline	Cost	Priority Level	Potential for Pilot
Organization Cooperation	Share youth pass benefits with local school district parents	State College Area School District Bellefonte Area School District	Medium-term	Revenue-generating	Low	
	Enforce clearing of snow at bus stops, especially downtown	State College Borough	Short-term	Neutral	High	
	Create a free transit program and transit validation program for parity with the free parking and parking validation programs downtown	State College Downtown Improvement District	Long-term	Medium additional operating cost	Low	Yes
	Add median treatments to disallow passing cars at Burrowes Rd at Westgate Building, 805 S Atherton St and S Atherton St at Pizza Hut, and S Burrowes St at the James Elliott Building	All partner organizations	Medium-term	Low capital cost	High	Yes
	Require shelters at new stops and add shelters to existing stops to vastly expand shelter coverage	All partner organizations	Medium-term	Low additional capital cost	High	
	Create an ordinance which requires development near bus stops downtown and on campus to provide indoor shelter	Penn State State College Borough	Long-term	Neutral	Medium	
	Explore near-level boarding at high-ridership stops	Penn State State College Borough	Long-term	Medium capital cost	Low	
	Develop procedures for reviewing development plans before the sketch plan phase	Centre Regional Planning Agency All municipalities	Short-term	Revenue-generating	Very High	Yes

Supporting Documents . Images

Appendix

See the data behind conclusions from this report and start making improvements with completed graphics

Supporting Documents

Download all supporting documents:
jamesgraef.com/cata-operations/appendix

DATA

[Raw data about dwell time, trip time, bus type \[Excel 3.2 MB\]](#)

[Shelter status of bus stops \[kmz 80 KB\]](#)

[Shelter status of bus stops: Google My Map](#)

[Atherton Transitway Sketch Plan: 3dm \[ZIP 27.6 MB\]](#)

GRAPHICS

CATA System Map:

[PDF, 2 pages \[PDF 4.5 MB\]](#)

[Image, outside \[PNG 1.7 MB\]](#)

[Image, inside \[PNG 2.4 MB\]](#)

[Editable Illustrator File \[ZIP 11.4 MB\]](#)

Stop Info Panels:

[PDF, 8 samples \[PDF 6.9 MB\]](#)

[Editable Illustrator File \[ZIP 6.8 MB\]](#)

Advertisement Graphics:

[PDF, 4 sample ads \[PDF 9.1 MB\]](#)

[Editable Illustrator File \[ZIP 8.0 MB\]](#)

[6 bus vectors with all numbers of doors \[ZIP 319 KB\]](#)

Images

All images are the author's unless noted.

Current maps and information panels; background road map:
catabus.com

Aerial images: [Google Maps](#)



