WINDSOR - DETROIT AERIAL GONDOLA

CONCEPT STUDY

DECEMBER 2021

SCJ ALLIANCE
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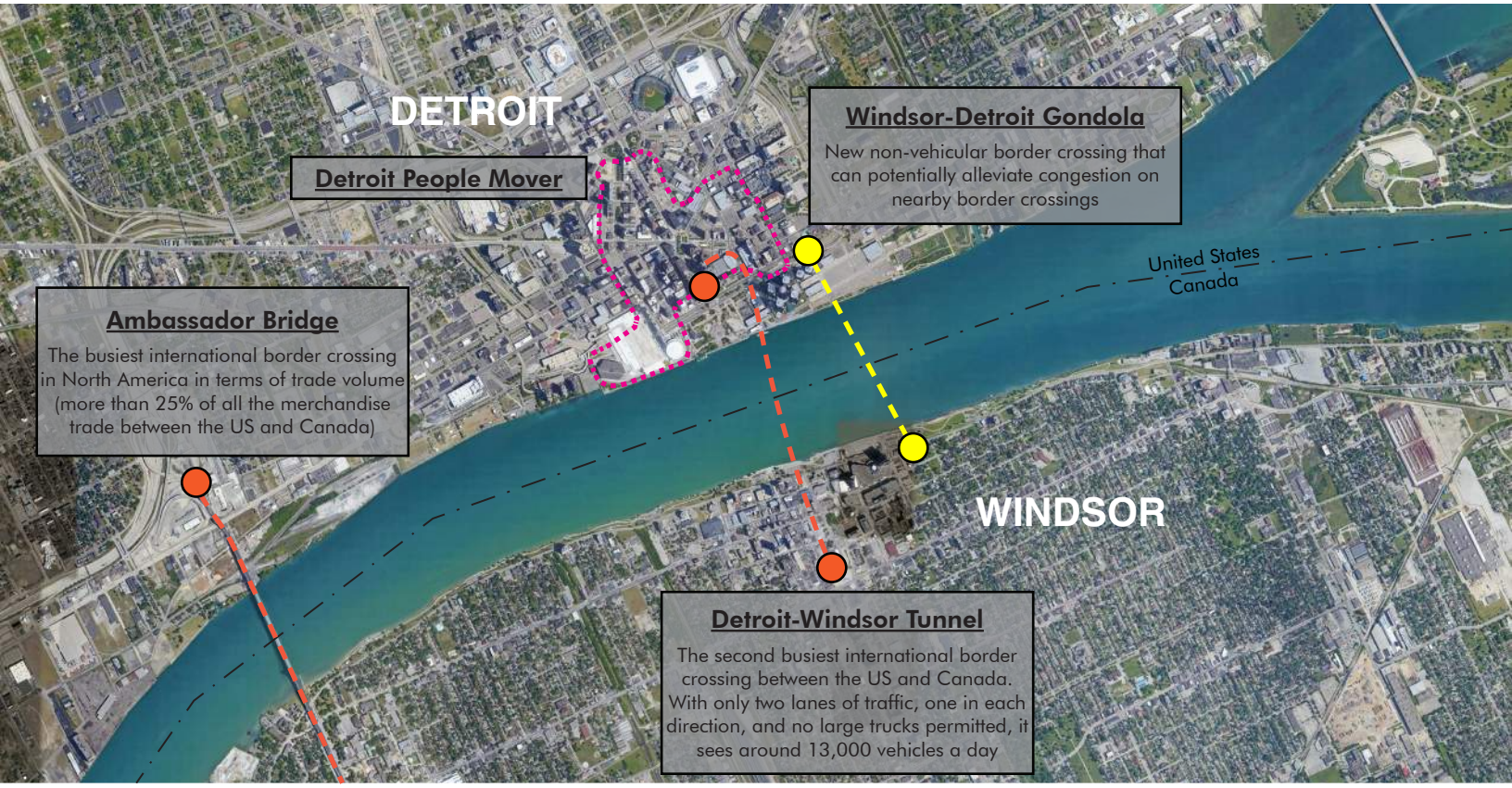
1 BACKGROUND & HISTORY

1.1 INTRODUCTION



The Windsor-Detroit border is the busiest international crossing in North America. According to the Ambassador Bridge website, more than 40,000 commuters, tourists, and truck drivers carrying $323 million worth of goods cross the Windsor-Detroit border each day.

Because of the sheer volume of people and goods moving between the two cities, introducing additional connection points between Windsor and Detroit has been a topic that is in almost-constant discussion. A new border crossing bridge is currently being built 3.2 kilometers south of the Ambassador Bridge, with an estimated opening date in 2024.

Having said that, the Detroit-Windsor Tunnel remains the only direct connection between Windsor and the downtown area of Detroit.

One of the primary purposes of examining a Windsor-Detroit gondola connection is to explore ways to reduce traffic congestion and to increase mobility options for border crossing between the cities' two major downtown attraction districts, thereby creating a single recreational node.

As opposed to traditional modes of transportation, a gondola connection offers significant advantages in costs, footprint, construction duration, land disruption, among many others.

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1.2 SCJ ALLIANCE

SCJ Alliance (SCJ) is an internationally recognized firm with specialty transit expertise in creating unique solutions to some of the most challenging transportation issues facing our communities. Understanding the complexity and nuances of specialty engineering projects has been the focus of the SCJ team, developing over 150 years of combined experience designing cable car systems all over the world. SCJ's team of planners and engineers are recognized thought leaders and experts in the industry of cable-propelled transit systems. SCJ's planners and engineers have a well-deserved reputation for being able to build anything, anywhere. Our experts guide clients though all project phases, from concept planning to detailed design and system commissioning.

1.3 WHAT THIS STUDY IS, AND WHAT IT ISN'T

This document is intended to summarize this concept study of a proposed aerial gondola connecting Windsor, Canada to Downtown Detroit in the United States across the Detroit River. This is a phase-one, pre-feasibility exploration of the strategic, economic and technical fundamentals of the proposed aerial gondola system. The study is a high-level analysis consistent with the strategic goals (see page 6) of the proposed concept. Those strategic goals have been developed in consultation with the Client, Dr. Louis Vaupotic.

As a detailed feasibility analysis is an increasingly expensive process given the complex interplay of social, political, economic and environmental factors, this phase-one study provides the Client with enough comprehensive analysis to make informed judgments about the project prior to committing the extensive resources required of a full detailed technical analysis.

1.4 WHAT ARE THE STRATEGIC GOALS OF THIS STUDY?

To provide guidance throughout the concept study, the project team has outlined the following strategic goals:

1. To determine if an aerial gondola would be a useful and functional transportation link between Windsor and Detroit.
2. To understand where the stations, towers, and gondola alignment could be located.
3. To verify that a high-capacity urban gondola system can effectively cross the river while providing adequate river clearance.
4. To understand an order of magnitude gondola system cost.
5. To make use of properties owned by the Client and by the public that can feasibly accommodate a gondola system.

1.5 MAJOR BENEFITS OF AERIAL GONDOLAS IN URBAN SETTINGS

Cities worldwide are now recognizing how aerial gondolas can improve transit connectivity. Some of the technology's major benefits are included below.

1. INSTALLATION TIMES
Gondolas can be built in 1-2 years after permitting and approvals.

2. HIGH FREQUENCIES / NO SCHEDULES
Gondola cabins can arrive and depart as often as every 30-60 seconds.

3. FULLY ACCESSIBLE
Gondolas provide 100% barrier-free access.

4. HIGH RELIABILITY
Gondolas can function with reliability levels of greater than 98%.

5. LOW IMPACT ON GROUND
Gondolas only impact the ground at station and tower locations.

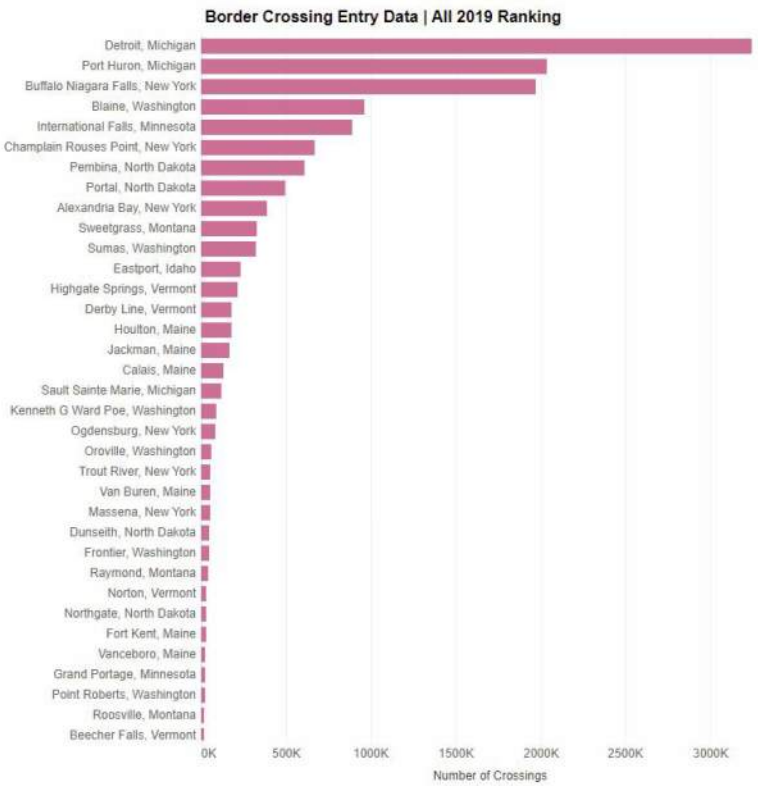
6. COST-EFFECTIVE
Gondolas can be built at 20-50% the cost of other rapid transit.

7. HIGH SAFETY
Gondolas are amongst the safest transport technologies in the world.

8. MEDIUM-HIGH CAPACITIES
Gondolas can transport up to 5,000 persons per hour per direction.

2 STUDY AREA CONTEXT

2.1 CURRENT BORDER CROSSING SITUATION



Bar chart showing the highest volume of commercial border crossing activity in 2019 along the US-Canada border. Data by the Bureau of Transportation Statistics, United States Department of Transportation.

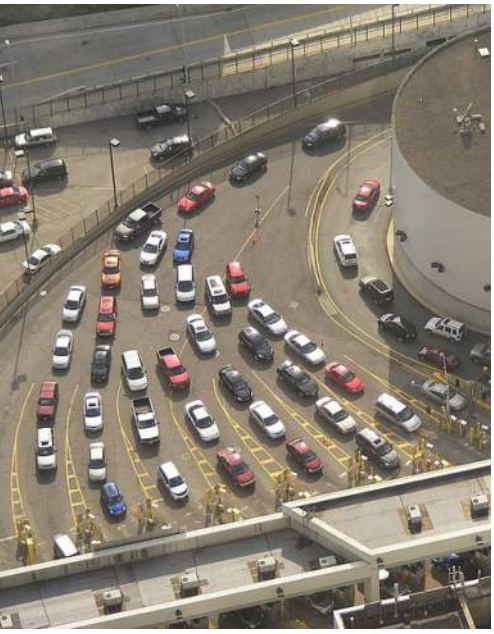
WHAT ARE THE EXISTING BORDER CROSSINGS BETWEEN WINDSOR AND DETROIT?

Ambassador Bridge and the Detroit-Windsor Tunnel are the two busiest crossings between the United States and Canada, and both connect Windsor and Detroit across the Detroit River. In 2004, a study* showed that these two connectors support more than 150,000 jobs in the region and more than $13 billion (US) in annual production. Because of the continued demand, a third border crossing, the Gordie Howe International Bridge, south of the Ambassador Bridge is currently under construction and is set to open in 2024. The Detroit-Windsor Tunnel remains the only direct connection from Windsor to Detroit's downtown area, and is operated by the Detroit and Windsor Tunnel Corporation which is owned equally by the City of Detroit and the City of Windsor.

HOW INTERCONNECTED ARE THE WINDSOR AND DETROIT ECONOMIES?

The two cities have been historically linked by the auto industry. Detroit is home to the Big Three automobile companies: General Motors, Ford Motor Company, and Chrysler. Windsor is home to Chrysler Canada and Ford Motor Company's Canada Division, and is one of Canada's major automobile manufacturing centers that also serves US-based companies. Over the past few years, the two cities have also been working together on expanding their region's economic portfolio with other rising industries such as the tech industry and entrepreneurship. Another expression of the interconnectedness of the two cities is how Windsor casinos had a significant influence on Michigan allowing casinos to be built in Detroit. Detroit also has a large healthcare sector presence, and many of its employees live in Windsor and work in Detroit. The variations in cost of living, currency value, real estate costs, wages, taxes, and other factors, all play a role in the dynamics of the two cities working together and complementing each other.

*Detroit Regional Chamber (2006). "Detroit–Windsor Border Update: Part I-Detroit River International Crossing Study".



WHAT ABOUT THE NON-COMMERCIAL TRAFFIC ACROSS THE BORDER?

As mentioned earlier, many of the top city employers in Detroit have workers who live in Windsor while working in Detroit. The same is true the other way around. Employees commute across the Detroit River everyday to get to their jobs and then back home. Additionally, it is common for residents of Windsor to spend a night out and go for leisurely activities in Detroit. And while recreational traffic might not be as busy in the opposite direction today, it is not uncommon. Windsor is unofficially nicknamed "South Detroit" because of how residents of the two cities view them as the same.

IS THE FLOW OF PEOPLE BETWEEN WINDSOR AND DETROIT EXPECTED TO GROW IN THE FUTURE?

This is very likely. The movement of people between the two cities may potentially increase in the future with the post-COVID economic recovery and the potential future growth of the City of Windsor. Windsor is pursuing a new major EV battery plant that would employ over 2,000 people. If this is realized, it is likely to draw additional similar ventures and projects to the region and boost the overall population and economic activity.

ISN'T THIS JUST ANOTHER CONNECTION ACROSS THE RIVER?

A gondola connection between Windsor and Detroit would be the first and only non-vehicular high-capacity connection across the border. Not only can it provide the connection for people who would normally commute from Windsor to downtown Detroit, but it could potentially expand into a public transit network that connects to various destinations within the two cities. Examples of potential connections are:

- Gondola connection to Ford Field and Comercia Park
- Gondola connection to TCF Center and potential for utilizing the parking structure as a park-and-ride facility
- Pedestrian bridge to the Renaissance Center people mover station
- Potential future ferry component to be incorporated with a stop in front of the Renaissance Center
- Gondola station platform potentially extended to accommodate the GM concept VTOL aircraft
- Existing FAST Bus connection to Amtrak and Detroit Metro Airport
- Existing Windsor Bus connection to VIA Rail and Windsor International Airport
- Connection to Devonshire Mall, the closest large shopping center to downtown Detroit, via connecting to existing public transit lines

2.2 EXPECTED CHALLENGES

The following list documents what are thought to be the major stress points and challenges associated with this project. This list is not meant to be exhaustive and may grow (or shrink) as the program of work advances.

1. LACK OF UNDERSTANDING ABOUT CABLE CARS

The overwhelming majority of transit riders have never experienced an aerial gondola as part of their commuting experience. The same applies to transit planners and policy makers.

2. INTRODUCING A NEW BORDER CROSSING

While Windsor and Detroit already have multiple active border crossings, introducing a new one has its complex set of requirements and special approvals. For one, the signature of the President of the United States is required for any new border crossing into the US. A new border crossing will need to be serviced by both American and Canadian security teams and border control personnel. Requirements for a new international border crossing in both countries have to be carefully vetted to evaluate the feasibility of pursuing such a project.

3. TECHNOLOGY CHOICE

The connection between Windsor and Detroit needs to cross the Detroit River which is about 825 meters in width at the approximate crossing location. Avoiding structures in the water and maintaining adequate clearances of about 38 meters above the water surface will likely require the use of a tricable gondola technology (see section 3 for an explanation of the technology differences). The choice of technology will be a critical element of the project economics.

4. SPACE CONSTRAINTS

The areas around proposed station sites (particularly in Detroit) are likely to be very urban and space-constrained. If stations are meant to function as park-and-ride facilities, careful attention will need to be paid to locating the station areas and ensuring that sufficient parking can be co-located at the station at a reasonable cost.

5. RESIDENTIAL PRIVACY CONCERNS AND VISUAL IMPACTS

The area to the east of the proposed station location in Windsor is a low-density residential neighborhood. The design of the system will need to consider the impacts to private properties, including privacy and aesthetic impacts.

6. EXISTING NEARBY BORDER CROSSINGS

Windsor and Detroit already have two border crossings that are only two miles away from each other. Two miles south of that, a third border crossing between the two cities is currently under construction. The novelty of the type of border crossing and increasing mobility choice between the two downtown areas across the border can potentially make a strong case for yet another border crossing for Windsor and Detroit.

7. CONNECTING WITH DEVELOPMENT PROJECTS

The potential route and stations for the aerial gondola system might help leverage or support known or anticipated land development.

8. INTEGRATION INTO TRANSIT INFRASTRUCTURE

Evaluating how an aerial gondola system would integrate (physically, operationally and financially) into the existing transit infrastructure, such as the Detroit People Mover, will need to be considered.

9. ECONOMICS OF THE SYSTEM

It is well-known that the vast majority of public transit is subsidized by one or many different levels of government. It is important at the early stage of this study to determine if this aerial gondola should operate under a similar model or if a new model should be explored to make the system more cost-effective.

10. NUMBER OF STAKEHOLDERS & PERMITTING AGENCIES*

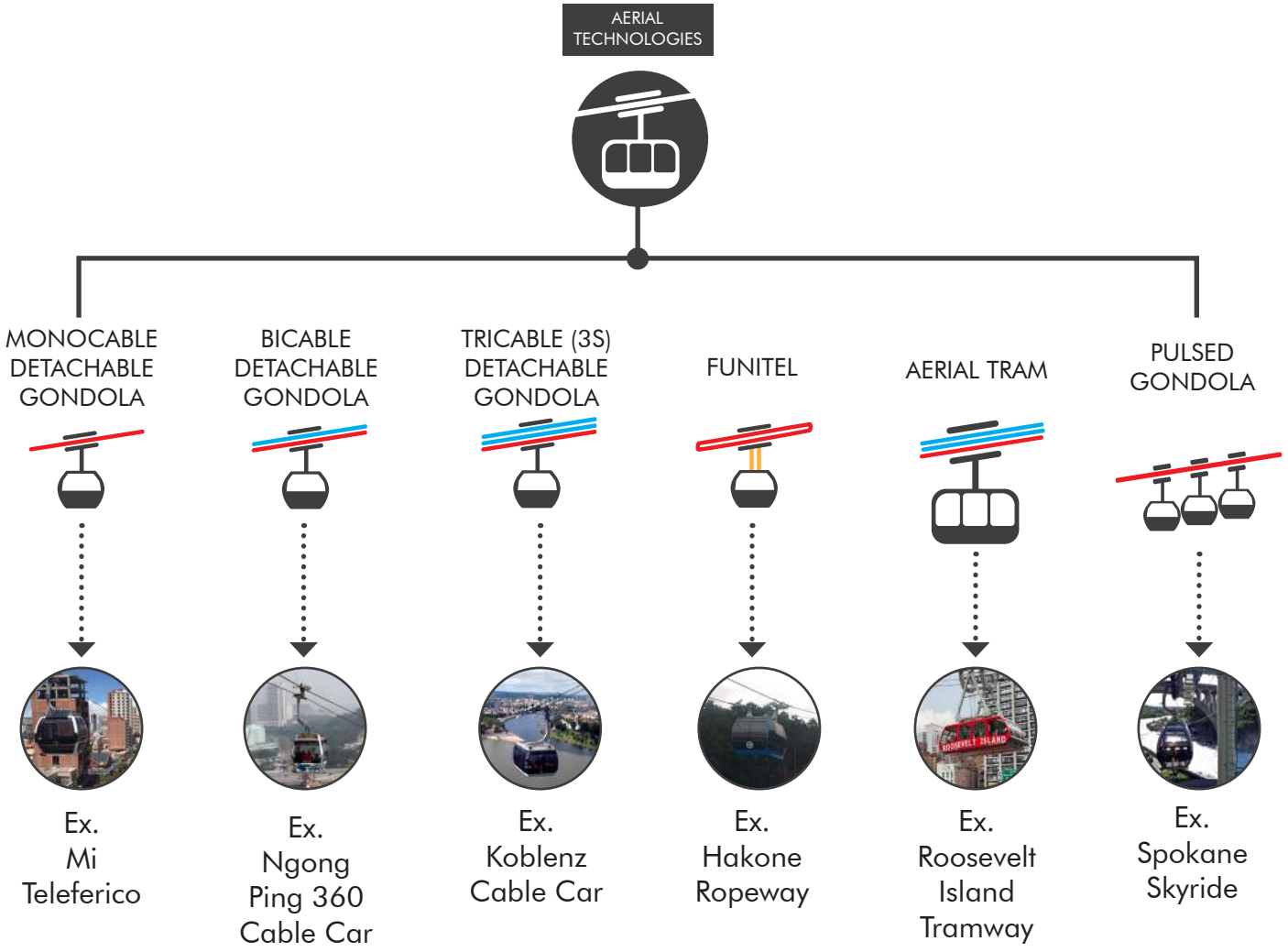
The number of stakeholders and permitting agencies that will be involved with this project is significant. At least two municipalities (Windsor and Detroit), Michigan State in the US, the Province of Ontario in Canada, the US Customs and Border Protection, Canada Border Services Agency, and the federal governments of both the United States and Canada would be involved in permitting this project. A careful analysis of the permitting will be required at the earliest of stages.

*This list of stakeholders and agencies is not meant to be prescriptive. It is assumed that more agencies than those listed above are likely to be required for permits and approvals.

3 URBAN GONDOLAS

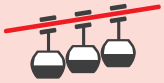
3.1 WHAT IS AN AERIAL GONDOLA?

Depending on the context, the definition of an aerial gondola may vary. However, for the purposes of this study, an aerial gondola refers to a public transit system where motorless cabins are propelled by a continuously circulating loop of cable, that is suspended from a series of towers. The family for aerial gondola technologies are generally broken down into the following categories.



3.2 GONDOLA TYPES & CHARACTERISTICS

The table below provides a summary of the performance characteristics of the various aerial gondola technologies found in urban and recreational settings. It is important to note that the performance capabilities can vary dramatically based upon the cable car technology selected.

	 MDG	 BDG	 3S/TDG	 FUNITEL	 AERIAL TRAM	 PULSED GONDOLA
Description	The monocable detachable grip gondola (MDG) is the most common aerial gondola technology available. It utilizes one cable for both support and propulsion.	The bicable detachable grip gondola (BDG) is similar to the MDG but with two cables - one cable for propulsion and one track cable for support.	The 3S/TDG gondola is currently the fastest and highest capacity gondola technology available. It has a detachable grip and three cables - two for support and one for propulsion.	The funitel is a detachable grip system that looks like an aerial tram but acts like a gondola. The system utilizes one dual loop cable to carry short-armed cabins.	The aerial tram is a large cabin, fixed grip system consisting of one or two vehicles. The traditional aerial tram has two vehicles fixed to the same cable loop, shuttling back and forth in tandem.	Pulsed gondolas are fixed grip systems that bunch MDG/BDG style cabins together into "pulses" (as opposed to spacing them out along the cable).
Maximum Speed (mph)	15.7	16.8	16.8	15.7	28	13.4
Maximum Capacity (pphpd)	Up to 4,500	Up to 4,000	5,000	4,000-5,000	Up to 2,000	Up to 2,000
Maximum Wind Speed Operation (mph)	25	25	60	60	60	25
Capital Cost (relative to other gondola technologies)	Low	Low-medium	High	Medium-high	Medium-high	Low
Grip	Detachable	Detachable	Detachable	Detachable	Fixed	Fixed

3.3 WHAT IS THE STATE OF THE ART TECHNOLOGY?

Aerial gondola systems have experienced significant technological innovations in recent years — especially as they enter the urban market. This section will provide a summary of the top innovations that have occurred in the urban gondolas industry.

The Koblenz Cable Car in Germany is an iconic 3S gondola located in an UNESCO World Heritage Site.

3S Gondola

The 3S gondola, also known as a Tricable Detachable Gondola (TDG), is considered the industry's most advanced system.

Technologically, it combines the speed and stability of a jig-back aerial tram with the high frequencies and high capacities of a continuously circulating gondola.

Compared to other circulating gondola technologies with detachable grips, 3S technology has the highest capacities, the highest wind resistance, the longest towerless span capabilities and the highest maximum travel speeds.

The Giggijoch Gondola has been built with Doppelmayr's D-Line technology and can transport 4,500 pphpd (highest capacity for a MDG system)

High Capacity Monocables

Many public transit cable cars seen worldwide utilize Monocable Detachable Gondola technology. It has one of the highest cost-performance packages amongst aerial technologies.

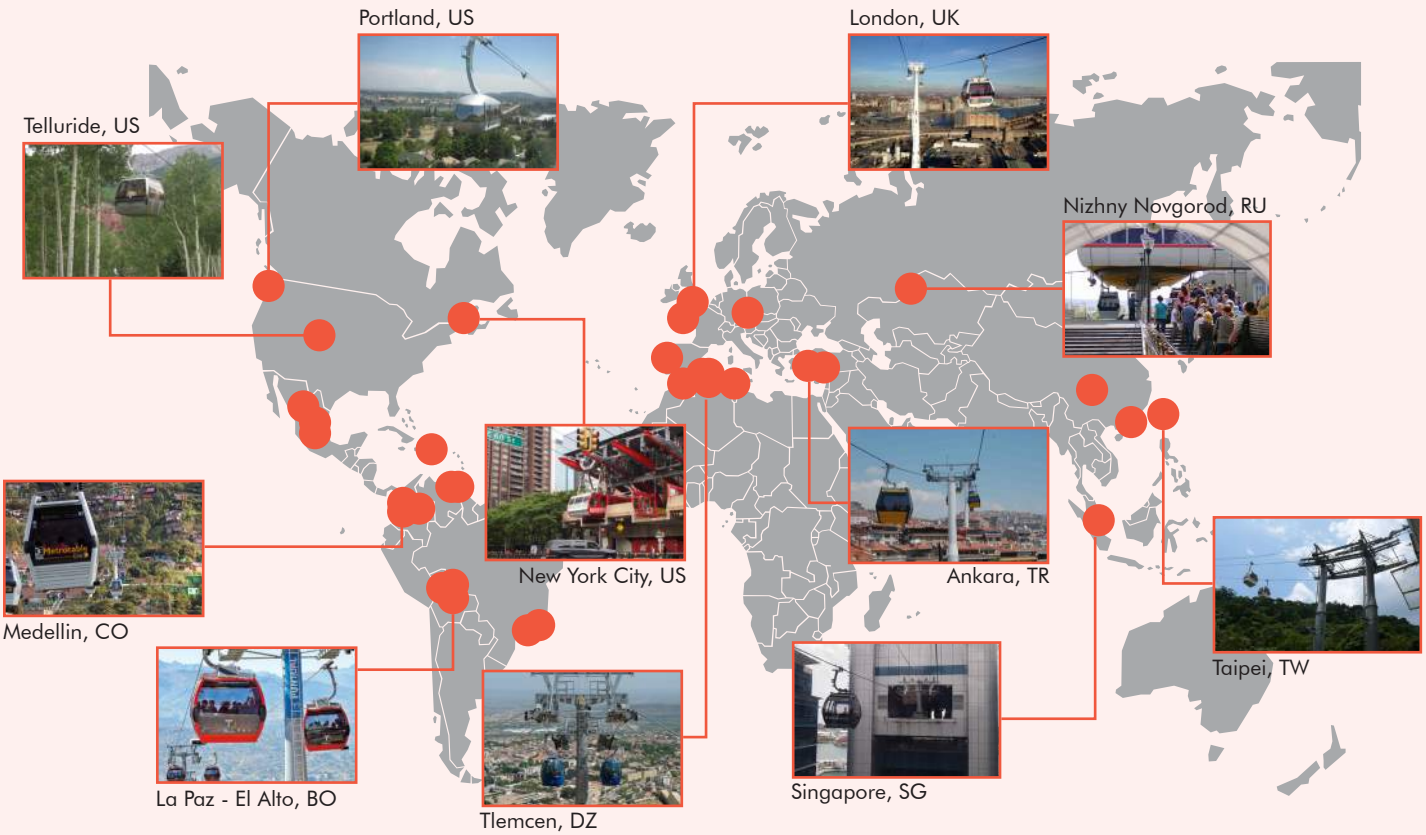
Until recently, directional line capacities for MDGs maxed out at 3,000 persons per direction per hour (pphpd). However, capacities have now reached 4,500 pphpd thanks to technological innovations made by gondola manufacturers.

3.4 WHERE ARE AERIAL GONDOLAS BEING BUILT IN URBAN AREAS?

Over 35 public cable-propelled transit systems are currently operating around the world. If urban cable-propelled transit systems that were built simply for recreational purposes were included, the total number of operational systems would increase to more than 90 systems.

The interest in aerial gondola technology has grown considerably in the last decade. Over 200 proposals have been publicized worldwide with different projects in the various phases of planning, design and implementation.

The map below provides an illustration of where major aerial gondolas can be found around the world.



3.5 WHAT'S HAPPENING IN NORTH AMERICA WITH AERIAL GONDOLAS?

Within North America, there are close to 60 aerial cable-propelled transit system proposals at the time of this report's writing. 40% of these proposals are located within Canada.

LA Dodgers Gondola is hoping to improve transit options and overall access for Dodgers fans.

Ex1. Los Angeles Dodgers Stadium

In Spring 2018, a proposal to connect Dodger Stadium and Los Angeles Union Station was publicly announced. Aerial Rapid Transit Technologies (ARTT), owned by the former owner of the LA Dodgers (Frank McCourt), is responsible for proposing the project to LA Metro. The transit agency is currently acting as the lead agency on the project for the California Environmental Quality Act (CEQA).

The Burnaby Mountain Gondola was included in the City's 10-year Transit Vision Plan.

Ex2. Burnaby Mountain Gondola

The Burnaby Mountain Gondola in British Columbia, Canada was first proposed in 2011. The system was envisioned to improve transportation reliability and convenience for the thousands of students and staff who take transit to Simon Fraser University. After various studies were conducted, the proposal is now part of a "Phase Two Investment Plan" which enables the regional transit agency to further advance the project and conduct any necessary technical work.

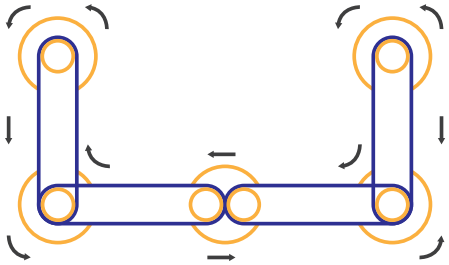
The gondola would cross the Potomac River in 4 minutes.

Ex3. Georgetown-Rosslyn Gondola

The Georgetown-Rosslyn Gondola is a proposed urban gondola system that would connect Georgetown to the Rosslyn Metro station in Washington DC. The system was conceptualized to improve public transit connectivity before a subway station could be built in Georgetown. The proposal was initiated by the Georgetown Business Improvement District and was subject to a feasibility study in 2016.

3.6 FACTS ABOUT AERIAL GONDOLAS

To properly propose feasible alignments, readers must understand that aerial gondola systems have unique design and performance characteristics. The list below provides some of the major items.



Above diagram depicts 5-station system with 3 mid-stations.

#1 - Major Turns Only at Mid-Stations

Gondola systems can only make turns if a mid-station is built. Since the construction of mid-stations increases project costs and travel times, the implementation of mid-stations should be carefully examined with respect to a project's strategic goals.

Medellin's Metrocable Line K is integrated with the city's subway.

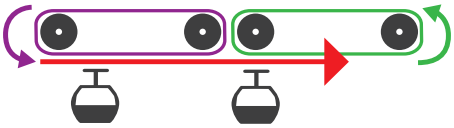
#2 - A Complementary Technology

Except in rare instances, urban gondolas function best in city environments when they are integrated as part of an overall transit network. Given their maximum capacities at 5,000 pphpd, they generally operate at their optimal capabilities as a feeder system to a larger transit system.

Medellin's Line L stations are designed with a wrap concept which improves aesthetics but remains cost effective.

#3 - Customization is Expensive

Constructing aerial gondolas with customized cabins and towers can add significant costs to a proposal. Proponents must carefully balance the needs of designing a system with high aesthetics while ensuring that the project is financially feasible. Unless the system travels along sensitive areas, full customization of gondola components is usually not necessary. Less costly solutions to improving aesthetics should be considered and explored.



Expanding a gondola is possible but requires careful planning.

#4 - Expansion Needs Careful Planning

To expand a gondola line, initial plans must be designed to allow for an extension. The adjacent illustration demonstrates how an initial gondola section (i.e. purple loop) can be expanded by attaching a new gondola section (i.e. green loop).

Medellin's Metrocable Line J operates at a reliability level of 99.86%.

#5 - Gondolas Are Highly Reliable

Research from existing urban gondolas demonstrate that they can operate at incredibly high levels of reliability. For instance, the Roosevelt Island Tram and Portland Aerial Tram operate at a reliability level of 99.9% and 99.8% respectively. Gondola owners can design contracts with gondola operators to ensure that the system operates optimally at all times.

Special cabins can be added to a gondola's cabin fleet to enhance profitability and user experience.

#6 - Consider Dual Fare Structures

Due largely to novelty and its aerial operations, urban gondolas have the ability to attract a sizeable number of tourist/recreational riders. Many systems around the world have created special fare structures whereby a higher tourist ticket price can be used to offset ticket prices for local riders.

Small station footprints allow gondola systems to be built in land-constrained areas.

#7 - Gondolas Are Low Impact

Gondola stations and towers have low levels of ground impact when compared to other forms of rapid transit. For instance, unlike rail and buses which require the construction of a road or rail along an entire route, towers need only be constructed at periodic intervals. This results in lower disruption at the ground level and increases implementation speed. Similarly, 3S gondola stations (the biggest footprint requirements of all aerial gondolas) only require station footprints of approximately 130ft by 65ft.

3.7 AERIAL GONDOLA FAQ

In addition to the seven things you should know about aerial gondolas, this FAQ hopes to provide answers to some of the most commonly asked questions.

A person is three times more likely to suffer a fatality riding an elevator than an aerial cable-propelled transit system.

Q1 - How safe are gondolas?

Based on statistics compiled, cable-propelled transit systems (including gondolas) are amongst the safest, if not the safest form of transportation in the world. A number of factors contribute to gondola system safety. These may include but are not limited to strict regulations, multiple system redundancies (i.e. backup motors, cabin recovery, etc.), and system management. For example, in the United States, there has not been a fatality on a gondola system since 1979.

3S gondolas can travel at maximum speeds of up to 16.8 mph (28 km/h).

Q2 - Aren't gondolas really slow?

Urban gondolas travel at speeds comparable to the average speeds of buses and streetcars operating in mixed traffic and semi dedicated rights-of-way. When passenger loading and unloading times are taken into consideration, travel speeds for urban gondolas seen around the world range from 9-13 mph (15-21 km/h). Comparatively speaking, streetcars and buses operating in mixed traffic have average speeds of 5-20 mph (8-32 km/h).

Gondolas have safely lifted winter enthusiasts to mountain peaks since skiing was popularized in the 1930s.

Q3 - Can gondolas operate in winter?

Cable-propelled transit systems have been built in almost all climatic conditions imaginable — from snowy mountain peaks, to sandy deserts, to the middle of a seismically active sea crossing. In fact, gondolas are known to operate with high levels of reliability and safety during winter months. After all, the technology has been designed for passenger transport at ski resorts.

The Purple Line in La Paz is the city's highest capacity cable car.

Q4 - How many people can they move?

Gondola systems have experienced significant technological advancements in recent years. For instance, urban gondolas built in Colombia and Venezuela can transport up to 3,000 passengers per hour per direction (pphpd). However, some new high capacity monocable detachable gondolas in La Paz, Bolivia can now transport up to 4,000 pphpd. The maximum capacity for aerial gondolas can be found on 3S systems where it can transport up to 5,000 pphpd.

The Roosevelt Island Tram was modernized in 2010 as part of a $25 million program of work.

Q5 - Are gondolas expensive?

Urban gondolas can be designed and built cost-effectively. Based on existing research, urban gondolas can cost 20-50% the price of a comparable rapid transit system (i.e. LRT, BRT, heavy rail). However, similar to other public transit systems, construction costs can vary and may depend on a number of factors including technology choice, design/architectural choices, the level of customization, and local factors (i.e. cost of labor). Gondolas can be financed via a mixture of private and/or public funds. For instance, the Portland Aerial Tram was built with funds from the Oregon Health Sciences University, the City (via tax increment financing) and nearby property owners.

4 THE PROJECT

4.1 PROJECT FAQ

This section includes some frequently asked questions and answers for the Windsor-Detroit gondola.

Q1 - Are you building an aerial gondola between Windsor and Detroit?

As of this very moment, the answer is no. The purpose of this study is to explore whether or not there is merit to the concept of an aerial gondola connecting Windsor and Detroit, and if so, what would the project look like and what might it cost.

Q2 - Who will pay for the gondola?

The economic model for this project is unknown at this time. Some aerial gondolas are owned fully by a government transit agency, others are owned solely by the private sector and others operate in what's called a public private partnership where both the private and public sector share the risks and rewards associated with the project.

Q3 - Why are you not examining other modes of public transit?

Given the political and technical challenges of crossing the Detroit River, this project is solely focused on the aerial gondola technology. It is understood that all other transit technologies would require infrastructure in the river and consequently the planning, design, and implementation of any other technology would be significantly more challenging.

Q4 - Is this for tourists or commuters?

This is unknown at this time, but it is presumed that the system will cater equally to the tourist, commuter and local recreational user. Examples from around the world demonstrate that tourists will pay a premium to use aerial gondola systems and that a significant amount of annual operating costs can be covered by this premium even when only a small percentage of riders are tourists.

Q5 - Will this improve my commute?

That's the goal. Given a gondola's short wait times and schedule free service at all times of day, it is believed that total travel times should be improved. The degree of that improvement, however, is unknown at this time and will make up a fundamental part of our analysis.

Q6 - Will this become a white elephant?

Hopefully not. The majority of cable car systems around the world have operated successfully for decades but there are always the outliers that don't. Those systems that have failed due to ridership levels not matching projections are typically decommissioned and sold for parts on the secondary market. This is made possible by the fact that a cable car system has a very limited footprint and is composed of pre-fabricated parts that are in demand by the thousands of other systems in operation around the world.

Q7 - How long would it take to build?

Aerial gondolas are typically built within 1-2 years after permitting and approvals are in place. It is expected that this system would require roughly 2 years to construct. Permitting and approvals would take significantly longer than that.

Q8 - What will it cost to ride the gondola?

This question remains open at the time. Some urban gondolas are free to riders who transfer from other parts of the transit network. Others are standalone systems with a universal price point. Others have prices for children, adults, tourists and even dogs(!) Various fare structures for the gondola will be analyzed by the project team over the course of the study with input from a variety of stakeholders.

4.2 WHAT WOULD THE WINDSOR-DETROIT GONDOLA LOOK LIKE?

While it is still too early to know for sure what technical specifications for a gondola system would be best for the Windsor-Detroit gondola connection, the consultant team did some high-level technical assessment based on available information at this stage. Below are some specifications that describe what this system may contain/provide.

System Type	Tricable (3S) circulating/detachable gondola
Length (approximate)	4,200 ft (1,280 m)
Towers	Two (2) 250-ft (75-m) tall towers
Maximum Capacity	4,500 pphpd*
Cabin Maximum Capacity	32 (seated)
Cabin Spacing	690 ft (210 m) / 28 seconds
Maximum Number of Cabins	20
Travel Speed	1,475 fpm (7.5 m/s)
Span Across Water	2,700 ft (825 m)
Clearance Above Water	124 ft (38 m)
Trip Time	3.9 minutes

*pphpd: people per hour, per direction

The illustrations below are conceptual renderings of the Windsor-Detroit gondola connection created using SCJ's proprietary Dynamic Planning Tool that utilizes the Google Earth platform. These renderings are at a very high level, and they would be revised and enhanced once a more refined alignment and station and tower locations are identified.

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DYNAMIC PLANNING TOOL

Note: Stations and towers shown here are place-holder images. The final design of this infrastructure will be determined in later project phases.

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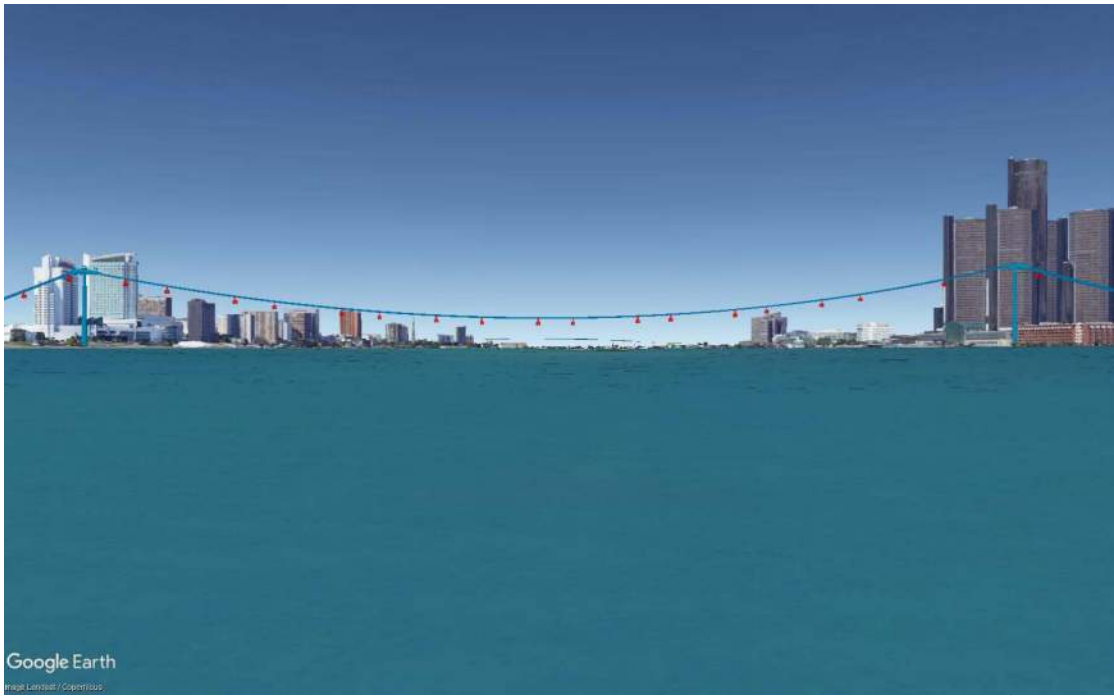
DYNAMIC PLANNING TOOL



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DYNAMIC PLANNING TOOL

Note: Stations and towers shown here are place-holder images. The final design of this infrastructure will be determined in later project phases.

4.3 CONTACT DETAILS

Steven Dale, B.Urb
Principal, SCJ Alliance

steven.dale@scjalliance.com
m. 416.524.5056

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APPENDIX: CONCEPTUAL COST ESTIMATES

Below are conceptual capital and operation and maintenance cost estimates for the Windsor-Detroit Gondola. These estimates need to be re-evaluated when a more refined alignment and system specifications are developed.

Capital Costs

Electro-Mechanical Gondola Equipment (installed)	CA$ 28-35 M
Towers & Foundations (installed)	CA$ 40-50 M
Elevated Windsor Station	CA$ 30-40 M
Elevated Detroit Station	CA$ 30-40 M
Total CAPEX	**CA$ 128-165 M**

Annual Operation and Maintenance Costs

Fixed Labor	CA$ 1-1.5 M
Variable Labor	CA$ 3-3.5 M
Other Costs	CA$ 2-2.5 M
Capital Reserve Funds (50% E-M by 15yr @ 3%)	CA$ 1-1.5 M
Total Annual OPEX	**CA$ 7-9 M**

The above cost estimates do not include the following:

- Planning, Permitting, Design & Commissioning Costs
- Program/Project Management & Construction Management
- Cable Car Consulting
- Pedestrian Bridge to Detroit APM
- Customs & Immigration Infrastructure/Operations
- Property Acquisition, Air-Rights & Land Use Costs

Note: The above operating and maintenance costs are higher than typical cable car systems given the boarder-crossing and the likely need for independent staff on each side of the boarder, considering the anticipated restrictions and inefficiencies of staff accessing both stations, especially during a system shut-down.

WINDSOR - DETROIT AERIAL GONDOLA

DECEMBER 2021

SCJ ALLIANCE
CONSULTING SERVICES