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Making Connections: Intermodal Links Between Scheduled Passenger Ferries and Other Public Transportation Modes

by Bruce Goldberg

Just over 40 percent of U.S. passenger ferry terminals offer connections to other scheduled public transportation modes. That makes ferries less connected than intercity rail, where 53 percent of stations have links with other modes, but more connected than airports where only 24 percent are served by another mode.¹ Scheduled passenger ferry terminal data are the most recent to be added to the Intermodal Passenger Connectivity Database (IPCD) being developed by the Bureau of Transportation Statistics (BTS). The database now includes connection information for 1,494 intercity rail stations, airports, and ferry terminals.

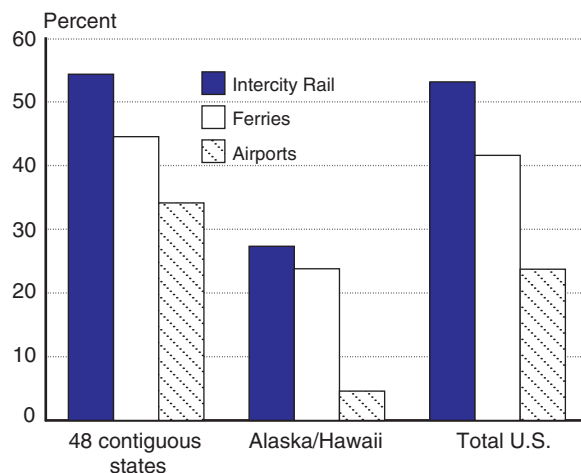
The ferry terminal inventory added to the IPCD is derived from data collected as part of the National Census of Ferry Operators, conducted by BTS in 2006. Of the 640 ferry terminals in that census, only 296 are included in the IPCD.² The IPCD quantifies connectivity at terminals in the scheduled public transportation system. Terminals served by ferries that primarily carry vehicles between two stretches of highway that are unlikely to be used by nonvehicular passengers, and those served only by tourist or attraction ferries, are not considered to be public transportation terminals for purposes of the IPCD.³ A complete description of

¹ BTS Special Report SR-004, with information on intermodal passenger connectivity at intercity rail stations and airports, entitled *Making Connections: Intermodal Links in the Public Transportation System*, can be found at www.bts.gov. The figures for intercity rail stations and airports used here have been updated to reflect changes since the issuance of that earlier report.

² The National Census of Ferry Operators includes itinerant, fixed route, common carrier passenger and vehicle roll-on, roll-off (Ro/Ro) ferry service. Railroad car float operations are also included.

³ Vehicle-carrying ferries are considered as part of the public transportation system for purposes of inclusion in the IPCD when they operate between ferry terminals where they are likely to serve individual travelers crossing the water without a motor vehicle. If they are unlikely to serve such travelers, then they effectively represent a "floating highway bridge" rather than the public transportation system for individual travel that the IPCD covers.

Figure 1: Percent of Rail, Ferry, and Airport Facilities with Connectivity to Other Public Transportation Modes



NOTE: Forty-six of the mainland states plus the District of Columbia have intercity rail service; 26 states including Alaska and Hawaii have scheduled passenger ferry service; and all 50 states have scheduled air service covered by the Intermodal Passenger Connectivity Database.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, Intermodal Passenger Connectivity Database as of December 2008.

The other category of passenger ferry terminal not included is one served only by tourist or attraction ferries that are unlikely to carry individuals traveling for general public transportation mobility. However, if the tourist/attraction destination is also an inhabited place of residence, and the residents use the ferry for nontourist related transportation, then the terminals are included in the IPCD.

If a ferry terminal is served by multiple types of ferry routes, as long as one of the routes is considered to provide individual public transportation, then the terminal is included in the IPCD.

the criteria used for the IPCD can be found in the Technical Report *The Background Criteria and Useage of the Intermodla Passenger Connectivity Database*.⁴

As with intercity rail and bus, BTS looked at connections for ferries in the contiguous 48 states separate from those in Alaska and Hawaii due to the unique geographic circumstances that exist in those two states. In the lower 48 states, connections with other modes are available at 44 percent of passenger ferry terminals, while in Alaska there are connections at 26 percent of passenger ferry terminals. The four ferry terminals in Hawaii are without scheduled public transportation connections. Figure 1 shows ferry terminal connectivity and comparable data for airports and intercity rail stations. Intercity rail stations and airports are the only other types of facilities for which the connectivity analysis has been completed at this point in time. Commuter rail stations will be added to the database during 2009, with heavy rail and light rail transit stations added in 2010. Intercity bus stations will be added after the completion of all rail stations.

While much of the ferry data in the IPCD comes from the 2006 National Census of Ferry Operators (NCFO), the IPCD data on connections at terminals to other modes differs in some cases from the data in the NCFO. In the NCFO, ferry operators self-reported data on various aspects of their operations, including connections with other modes. However, the IPCD connection criteria were subsequently developed, and have been used to review each ferry location for its proximity to the other transportation modes. The IPCD connectivity data reflects the results of that review.

Ferry Facilities

The Intermodal Passenger Connectivity Database classifies ferry terminals as being either transit or intercity. A transit facility is one where the majority of departures are to locations within the same city or metropolitan area as the facility; an intercity facility is one where the majority of departures are to locations outside of the metropolitan area. This categorization is consistent with the treatment of the other modes within the IPCD. However, it differs from the National Census of Ferry Operators, where ferries are classified as intrastate, interstate, or international. See box A for some examples of intercity and transit ferries as used in the IPCD.

Of the 296 ferry facilities, 189 are transit ferry facilities, and all but 2 of these transit facilities are located on the U.S. mainland. The other two are in Alaska. There are 107 intercity facilities, with 67 of those facilities on the U.S. mainland, 36 in Alaska, and 4 in Hawaii.

There is little difference in the percentages of transit and intercity ferry facilities with connectivity to other public trans-

Box A: Ferry Classifications

Transit ferries are those that operate within a single metropolitan or micropolitan urbanized area whether within a single state or across state lines. Some examples of transit ferries are the ferries that run between San Francisco and Oakland, CA, the ferries between New York City and points across the Hudson River in New Jersey, and the ferry linking Moline, IL and Davenport, IA. Some of these ferries are classified as interstate and some intrastate within the National Census of Ferry Operators.

Intercity ferries are those that travel between points not located in the same urbanized area. The Alaska Marine Highway System ferries operate intercity service within Alaska and to the State of Washington. Other examples of intercity ferries are those that operate between Fort Myers and Key West, FL; Long Beach and Catalina Island, CA; and Orient Point, NY to New London, CT, to name a few.

The commuter and intercity ferry definitions used for ferry terminals are consistent with the classification of service used to describe other modes in the Intermodal Passenger Connectivity Database.

SOURCE: U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics, January 2009.

portation modes. There are connections to at least one other scheduled public transportation mode at 43 percent of the transit ferry terminals and 36 percent of the intercity terminals. Transit ferry terminals are more likely than intercity ferry terminals to be served by at least two modes in addition to the ferry. Ten percent of transit ferry terminals are served by at least two other modes, but for intercity ferry terminals that figure is only about 3 percent. Table 1 shows the extent of connectivity for each type of terminal.

Number of Connecting Modes

Among the 296 scheduled passenger ferry facilities, 59 percent (175 facilities) do not have direct connections to other modes. One-third (99 facilities) are served by 1 other mode besides ferry, 20 are served by 2 other modes, and there are 2 facilities that are served by 3 other modes. Table 2 lists the 22 specific ferry facilities served by 2 or more other modes. Boston Logan Airport and the Hoboken, NJ, Terminal are the only ferry facilities served by three other modes. Of the facilities served by multiple connecting modes, 16 are located in the northeast section of the United States where there is generally more widespread public transportation service than in most other parts of the country.

⁴ The Intermodal Passenger Connectivity Database, and all related reports, can be found at www.bts.gov.

Table 1: Connections Available by Terminal Type

| | Intercity ferry terminals | | Transit ferry terminals | | All terminals | |
|---------------------------------|---------------------------|--------------|-------------------------|--------------|---------------|--------------|
| | Total | Percent | Total | Percent | Total | Percent |
| Lower 48 State terminals | 67 | 100.0 | 187 | 100.0 | 254 | 100.0 |
| No connections | 36 | 53.7 | 107 | 57.2 | 143 | 56.3 |
| Connect with 1 other mode | 28 | 41.8 | 63 | 33.7 | 91 | 35.8 |
| Connect with 2 or more modes | 3 | 4.5 | 17 | 9.1 | 20 | 7.9 |
| Alaska terminals | 36 | 100.0 | 2 | 100.0 | 38 | 100.0 |
| No connections | 28 | 77.8 | 0 | 0.0 | 28 | 73.7 |
| Connect with 1 other mode | 8 | 22.2 | 0 | 0.0 | 8 | 21.1 |
| Connect with 2 or more modes | 0 | 0.0 | 2 | 100.0 | 2 | 5.3 |
| Hawaii terminals | 4 | 100.0 | 0 | — | 4 | 100.0 |
| No connections | 4 | 100.0 | 0 | — | 4 | 100.0 |
| Connect with 1 other mode | 0 | 0.0 | 0 | — | 0 | 0.0 |
| Connect with 2 or more modes | 0 | 0.0 | 0 | — | 0 | 0.0 |
| Total | 107 | 100.0 | 189 | 100.0 | 296 | 100.0 |
| No connections | 68 | 63.6 | 107 | 56.6 | 175 | 59.1 |
| Connect with 1 other mode | 36 | 33.6 | 63 | 33.3 | 99 | 33.4 |
| Connect with 2 or more modes | 3 | 2.8 | 19 | 10.1 | 22 | 7.4 |

NOTE: Percent totals may not add up due to rounding.

SOURCE: Intermodal Passenger Connectivity Database, U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics as of December 2008.

Table 2: Ferry Terminals Served by Two or More Other Modes

| Terminal | City | State | Number of connecting modes in addition to ferry | Number of connecting modes | | | |
|-----------------------------|-------------|-------|---|----------------------------|--------------|--------------|-----|
| | | | | Bus | Rail network | Transit rail | Air |
| Ketchikan Airport | Ketchikan | AK | 2 | • | | | • |
| Airport Ferry Terminal | Ketchikan | AK | 2 | • | | | • |
| Ferry Terminal (Ferry St.) | New London | CT | 2 | • | • | | |
| Ferry Terminal (State St.) | New London | CT | 2 | • | • | | |
| Madison Street Dock | Chicago | IL | 2 | • | • | | |
| Canal Street Ferry Terminal | New Orleans | LA | 2 | • | | • | |
| Long Wharf | Boston | MA | 2 | • | | • | |
| Logan Airport | Boston | MA | 3 | • | | • | • |
| Hoboken Terminal | Hoboken | NJ | 3 | • | • | • | |
| Newport Ferry Terminal | Jersey City | NJ | 2 | • | | • | |
| Lincoln Harbor | Weehawken | NJ | 2 | • | | • | |
| Port Imperial | Weehawken | NJ | 2 | • | | • | |
| Federal Street | Camden | NJ | 2 | • | | • | |
| Ferry Terminal | Greenport | NY | 2 | • | • | | |
| Whitehall Terminal | New York | NY | 2 | • | | • | |
| Battery Park | New York | NY | 2 | • | | • | |
| Battery Maritime Bldg. | New York | NY | 2 | • | | • | |
| St. George Ferry Terminal | New York | NY | 2 | • | | • | |
| Ossining Ferry Terminal | Ossining | NY | 2 | • | • | | |
| Ferry Terminal | Yonkers | NY | 2 | • | • | | |
| Ferry Terminal | Edmonds | WA | 2 | • | • | | |
| Alaska Ferry Terminal | Bellingham | WA | 2 | • | • | | |

NOTE: The Ketchikan Airport Ferry operates between the Airport on Gravina Island and the Airport Ferry Terminal in Ketchikan. Since this operation is similar to intra-airport shuttle bus systems, both docks are considered to be part of the airport, and thus both are considered to be served by the airplanes (Ketchikan Airport) and the transit buses (Airport Ferry Terminal). For a more detailed explanation, see the Technical Report on Intermodal Passenger Connectivity Database criteria, being issued in February 2009.

SOURCE: Intermodal Passenger Connectivity Database, U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics as of December 2008.

Connecting Transportation Modes

Transit bus is the most frequently available connecting mode at the 296 ferry facilities included in the IPCD. There are 108 locations where ferry passengers can make connections with transit buses. When all 296 ferry facilities are considered, only 36 percent of all ferry facilities have transit bus connections. However, only 156 of the 296 ferry facilities are in cities or towns with transit bus service. Therefore, transit bus actually serves 69 percent of all ferry facilities in cities where transit bus service is provided. In addition to the 108 ferry facilities served by transit bus, another 22 have transit bus service within one or two blocks, which the Intermodal Passenger Connectivity Database classifies as a “near connection.” Therefore, transit bus is available at or near 83 percent of the ferry facilities in localities where transit bus service is provided.

Ferries connect with the other ground transportation modes in far fewer locations than they connect with transit bus. This is partly because other modes serve far fewer ferry cities than transit bus. Intercity buses and code-share buses serve a combined total of 22 ferry facilities.⁵ The standard rail network (intercity and commuter rail) and the rail transit network (subway and light rail) connect with ferries at 11 and 12 locations, respectively. Table 3 shows the number of passenger ferry terminals with connections to each of the other scheduled passenger travel modes.

⁵ Code share buses are those operated specifically for the purpose of carrying passengers to connect with another mode. Examples are “Amtrak Thruway” buses operated to carry passengers from nonrail cities to connect with Amtrak trains, and shuttle buses operated to carry ferry passengers from the dock to locations in nearby towns.

Metropolitan Areas

Over two-thirds (69 percent) of the scheduled passenger ferry terminals are located in urbanized areas. Of the 204 terminals in urbanized areas, 175 are located in metropolitan areas and 29 are located in micropolitan areas.⁶ The remaining 92 ferry facilities are in locations outside of urbanized areas.

Connectivity is much more likely to occur at metropolitan area ferry facilities than at the facilities in either micropolitan areas or at those outside of urbanized areas. Half of the facilities in metropolitan areas (87 of 175) are served by other modes. Transit bus is the most prevalent connecting mode, serving 84 of the 87 metropolitan area facilities.

Eight of the 29 micropolitan area facilities (28 percent) have at least 1 intermodal link, and again the most prevalent mode is the transit bus serving 7 of those 8 facilities. Even in nonurbanized areas, where 26 of 92 facilities (28 percent) are served by another mode, transit bus is the most common connection serving 17 of those locations.

Table 4 shows the availability of connections by type of area, and data on the number of connecting modes. This table is broken down for the lower 48 states, Hawaii/Alaska, and a U.S. total.

Airport Ferry Terminals

There are seven ferry terminals where passengers can connect with air service. Six are in Alaska, including the

⁶ A metropolitan area contains a core urban area of 50,000 or more population, and a micropolitan area contains an urban core of at least 10,000, but less than 50,000, population.

Table 3: Service by Connecting Modes at Passenger Ferry Facilities

| | Transit bus | Intercity bus | Rail network | Transit rail | Air |
|--|-------------|---------------|--------------|--------------|-----|
| Total U.S. passenger transportation ferry facilities | 296 | 296 | 296 | 296 | 296 |
| Ferry facilities served by mode | 108 | 7 | 11 | 12 | 8 |
| Total ferry facilities in cities served by mode | 156 | 79 | 59 | 47 | 104 |
| Ferry facilities not served by mode | 48 | 72 | 48 | 35 | 96 |
| Percent of ferry facilities served in cities served by the connecting mode | 69% | 9% | 19% | 26% | 8% |
| Percent of all 296 U.S. passenger transportation ferry facilities served | 36% | 2% | 4% | 4% | 3% |
| “Near connections” between mode and ferry facilities | 22 | 3 | 5 | 9 | 0 |
| Total ferry facilities served directly or via “near connections” | 130 | 10 | 16 | 21 | 8 |
| Percent of ferry facilities in cities served by this mode with connection or “near connection” | 83% | 13% | 27% | 45% | 8% |

NOTES: “Near connections” are defined as locations where the stop for the other mode is nearby (1-2 blocks away) but not adjacent to the ferry terminal. Rail Network refers to stations on the national rail system that are served by either intercity rail (Amtrak and Alaska Railroad) or commuter rail. Transit Rail refers to metropolitan subway or light rail systems.

SOURCE: Intermodal Passenger Connectivity Database, U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics as of December 2008.

Table 4: Ferry Terminal Connectivity by Area Type

| | Ferry terminals | Ferry terminals w/connectivity | Percent of terminals w/ connectivity | Number of ferry terminals by number of connecting modes | | |
|---|-----------------|--------------------------------|--------------------------------------|---|---------------|---------------|
| | | | | 1 other mode | 2 other modes | 3 other modes |
| Lower 48 States terminals, total | 254 | 111 | 43.7 | 91 | 18 | 2 |
| Urbanized areas, total | 196 | 92 | 46.9 | 72 | 18 | 2 |
| Metropolitan areas | 175 | 87 | 49.7 | 67 | 18 | 2 |
| Micropolitan areas | 21 | 5 | 23.8 | 5 | 0 | 0 |
| Nonurbanized areas | 58 | 19 | 32.8 | 19 | 0 | 0 |
| Alaska terminals, total | 38 | 10 | 26.3 | 8 | 2 | 0 |
| Urbanized area, total | 6 | 3 | 50.0 | 1 | 2 | 0 |
| Metropolitan areas | 0 | 0 | 0.0 | 0 | 0 | 0 |
| Micropolitan areas | 6 | 3 | 50.0 | 1 | 2 | 0 |
| Nonurbanized areas | 32 | 7 | 21.9 | 7 | 0 | 0 |
| Hawaii terminals, total | 4 | 0 | 0.0 | 0 | 0 | 0 |
| Urbanized area, total | 2 | 0 | 0.0 | 0 | 0 | 0 |
| Metropolitan areas | 0 | 0 | 0.0 | 0 | 0 | 0 |
| Micropolitan areas | 2 | 0 | 0.0 | 0 | 0 | 0 |
| Nonurbanized areas | 2 | 0 | 0.0 | 0 | 0 | 0 |
| All terminals, total | 296 | 121 | 40.9 | 99 | 20 | 2 |
| Urbanized area, total | 204 | 95 | 46.6 | 73 | 20 | 2 |
| Metropolitan areas | 175 | 87 | 49.7 | 67 | 18 | 2 |
| Micropolitan areas | 29 | 8 | 27.6 | 6 | 2 | 0 |
| Nonurbanized areas | 92 | 26 | 28.3 | 26 | 0 | 0 |

NOTE: A metropolitan area contains a core urban area of 50,000 or more population, and a micropolitan area contains an urban core of at least 10,000, but less than 50,000 population.

SOURCE: Intermodal Passenger Connectivity Database, U. S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics as of December 2008.

two ferry terminals that serve the Ketchikan International Airport. At Ketchikan Airport, located on Gravina Island, a municipally operated airport ferry system shuttles passengers across the Tongass Narrows between the airport ferry dock in town and the airport terminal. At the other four locations in Alaska,⁷ air service is provided by seaplanes that operate from a dock offering connectivity with the ferry service at that location. The only airline airport outside of Alaska served by ferry is Boston Logan Airport. At Logan, the Massachusetts Bay Transportation Authority (MBTA) Harbor Express ferry operating between Boston's Long Wharf and Quincy serves the airport pier. The pier is linked to the terminals by an airport operated shuttle.⁸

The Database

The Intermodal Passenger Connectivity Database was developed to provide an inventory of intermodal passenger

⁷ Akutan, Angoon, Pelican, and Tenakee Springs.

⁸ Although the pier is physically separated from the airport terminal, service to the pier is considered service to the airport since the pier is linked to the airline terminals by an airport operated shuttle bus. See the technical report on the Intermodal Passenger Connectivity Database that will be issued in February 2009 for a discussion of the criteria used to determine connectivity.

facilities to use as a baseline for measuring the degree of connectivity in the passenger transportation system, and for measuring future progress toward greater connectivity. This database is specifically responsive to the BTS congressional mandate to include information on the location and connectivity of transportation facilities and services in an intermodal transportation database.⁹ These data allow detailed analysis of the degree to which the various modes connect, and thus can serve as a way to measure the connectivity offered by the passenger transportation system.

In addition to intercity rail, airline airports, and ferry terminals that are already in the database, fixed guideway transit (heavy rail, light rail, and commuter rail) and intercity bus are still to be added. When completed, the database will cover approximately 6,500 terminal facilities in the 50 states and the District of Columbia.

The next mode to be added to the database, and the next report in this series, will cover commuter rail stations. 🔄

⁹ 49 U.S.C.(d)(3)(c)

About this report

This report was prepared by Bruce Goldberg, Transportation Specialist, in the Bureau of Transportation Statistics (BTS). BTS is a component of the Department of Transportation's Research and Innovative Technology Administration.

This Special Report highlights data from the second phase of the BTS Intermodal Passenger Connectivity Database that is being developed as a nationwide census of passenger terminals and intermodal services provided at those terminals. It presents findings on the degree of connectivity offered by ferry services and does some comparison with the data for intercity rail and airports that was presented in Special Report SR-004, issued in September 2007.

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Data –

- Intermodal Passenger Connectivity Database
- National Census of Ferry Operators
- National Transportation Atlas Database: Intermodal Terminal Facilities—the freight counterpart to the Intermodal Passenger Connectivity Database.

Publications –

- *Making Connections: Intermodal Links in the Public Transportation System*, Bureau of Transportation Statistics, Special Report SR-004, September 2007.
- Technical Report: *The Background, Criteria, and Usage of the Intermodal Passenger Connectivity Database*, Bureau of Transportation Statistics, February 2009.