INNER CIRCUMFERENTIAL COMMUTER RAIL FEASIBILITY STUDY

FINAL REPORT

Metra

and

STV Inc.

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(under separate cover)

FOREWORD

It is very important that the reader recognize from the outset that all of the discussions, assessments and conclusions contained in this feasibility study report are based on the best information available prior to publication. This is particularly true of the capital cost estimates for railroad infrastructure improvements. These cost estimates are broad order-of-magnitude estimates of the highest level, with very little actual engineering data upon which to make more detailed estimates. All of these estimates have been created by utilizing unit costs for materials and equipment in 1997 dollars, i.e., unit costs that were current when most of the cost-estimating work for this study was done.

More precise capital cost estimates will come after the process advances to engineering and design. In fact, the costs are likely to be re-estimated several times before reaching the stage where the decision to pursue implementation could be made. Even computing probable cost increases based on current rates of inflation would be futile, given the potential for changes to the economy of the railroad industry and the lack of predictability for exactly when (presuming further feasibility studies continue to show viability) implementation of this commuter rail service might be pursued by Metra. At least three factors can impact the capital cost estimates in the future:

- Freight railroad operations and traffic volumes are subject to change at any time on any existing freight railroad. Growth of the national economy, improved competitive costs produced by the railroads, or future railroad mergers could all have a major influence on the potential cost of implementing commuter service. A case in point is the Conrail break-up, which has been divided between Norfolk Southern and CSX Transportation. Without having the ability to determine the exact amount of service Metra could provide, neither the amount of ridership which can be attracted to the service nor Metra's potential operating costs can be derived at this time.

- Since one specific alignment has not yet been selected, it is too early in the study process for Metra to initiate formal negotiations with any of the freight railroads in this report. Until such negotiations actually begin, it is difficult to know what capital improvements the freight railroads might require to provide them with a comfort level that is sufficient to allow them to approve implementation of commuter rail service on lines that they own. Also, it is not possible to know what kind of trackage-rights or other form of agreement could be achieved, or at what cost.

- New track-protection regulations, developed to augment existing safety procedures, could affect the productivity of contractors implementing the necessary improvements. These regulations, combined with the potential for increasing freight traffic, could limit the amount of time available for construction work, which could also significantly impact potential costs.

Therefore, while the capital cost estimates reported herein are a good relative measure for comparison among the alignments in this first phase of the overall study, on an absolute scale they should be considered only as an order-of-magnitude indication of potential investment requirements. Further refinement of these values will be needed during succeeding phases of the project.

Operating costs can only be determined following travel demand forecasts, since the schedule of trains operated will be influenced by the demand, and conversely increased levels of service can influence the attraction of higher demand (i.e., more riders). Travel demand forecasts (often called ridership estimates) are slated for the next step in the study process. This phase will take the form of either a Major Investment Study or Phase II Feasibility Study (see Recommendations). The results of the forecasting process could render the entire concept unworkable from a cost/benefit standpoint if few riders are expected. Conversely, the level of service required to attract a sufficient level of ridership to make the service cost-effective might not be implementable due to constraints caused by a route's infrastructure or an insurmountable level of freight service. The ratio of projected revenue to projected operating costs, a key indicator of potential performance, can only be determined after ridership is forecasted. Therefore, projected operating costs will be developed later in the process.

An extremely costly but vital line capacity analysis must be performed in the Phase II Feasibility Study, in order to determine if the suggested railroad improvements are sufficient to run commuter trains efficiently (i.e., on time), or whether additional improvements (e.g., additional tracks, signals, bridges, etc.) must be provided in order to avoid potential delays from freight traffic. This computerized depiction inputs all current freight train schedules and mixes them with potential commuter train schedules in order to simulate actual running experience, and determine whether the suggested additional infrastructure is adequate to handle all of the train movements. The closer to implementation that this is performed, should the decision-making process reach that point, the better and more relevant will be the accuracy of the results.

At this point in time, the potential station locations indicate only that communities have suggested potential sites that fit with their future plans. These locations become place holders that will be carefully examined and evaluated as to site acceptability concurrent with the travel demand forecasting process, at which time the projected ridership will be used to determine requirements for depot size, platform length, number of parking spaces (with room for expansion to the year 2020), and ancillary station-related needs. There were also no detailed examinations of the environmental aspects of potential station sites.

Without ridership forecasts, from which the scope of station and parking needs are derived, specific station-related costs (including land acquisition) are indeterminable at this time. Parking requirements will dictate the necessary size of the land parcels that must be acquired (and therefore the cost, which could change dramatically over time); also, the suggested sites must have adequate vacant land for acquisition and room for future expansion. Site-specific cost estimates for land and station/parking facilities will be examined in the Phase II Feasibility Study. However, in order to provide complete capital-cost estimates, a conservative estimate of potential total station costs, by alignment, is included. At this juncture, it is particularly important to remember that all future park-and-ride station-related costs, including land acquisition and depot/parking facility construction, will be the responsibility of and must be borne by the host community.

Metra Staff

1.0 INTRODUCTION

The Inner Circumferential Commuter Rail Feasibility Study follows on the heels of the very successful effort by Metra to initiate passenger service on the North Central Service Line in 1996. The Inner Circumferential Service (ICS) concept offers an opportunity to provide non-CBD-oriented commuter rail service to the western Cook County suburbs while addressing the subregion's emerging demographic trends and changing economic activities, both of which are taxing the existing transportation system's capacity.

This effort was sponsored jointly by the members of the West Central and North Central Councils of Mayors, who sought and obtained the necessary funding for Metra to conduct the Study on their behalf. This report presents a proactive approach to solving some of the Chicago area's mobility needs by studying ways to work toward developing a *network* commuter rail system, enhancing the present radial CBD-oriented rail system. Furthermore, the results could help to support both community-based and regional efforts to address the requirements contained in the Clean Air Act Amendments of 1990.

The Study was organized into four major tasks or milestones, all aimed at providing a methodological and objective means of formulating Study recommendations. This was a collaborative effort among Metra, the two Councils of Mayors, the respective freight railroads, the communities in the study area, and the consulting team. Community participation and consensus-building were underlying tenets of the Study.

The study area is comprised of the near-western suburbs of Chicago and portions of the west side of the City of Chicago. The study area includes both the West Central and North Central Councils of Mayors who represent 35 municipalities that collectively contributed a local share of the funding for this Feasibility Study. This area encompasses nine townships within Cook County and seven Chicago Community Areas (CCAs) within the City of Chicago. A study-area map and list of communities is provided in this section.

2.0 EXISTING CONDITIONS

This section of the report documents the physical and operating characteristics of each potential route through the general Study corridor. This initial step was critical to the consideration of instituting commuter rail service, since it provides an early indication of what new facilities might be required to operate an ICS. The inventory of existing railroad conditions relied primarily on existing resources from Metra and the respective freight railroads. A broader list of potential alternatives to provide commuter rail service in the study corridor underwent a cursory review and was narrowed to four primary options.

Each of the alignment options assumed operations on the Wisconsin Central, beginning at the North Central Service O'Hare Transfer Station and continuing south to Tower B-12 in Franklin Park, from which point the various routes diverge. The report includes detailed descriptions for each of these corridors. <u>At this point in time, none of the information that was generously supplied by the respective railroads should be taken to imply sponsorship or support of the ICS concept by any of them.</u> <u>Also, the critiques provided in this section of the report are not intended to portray or imply in any way that their current physical plants and infrastructure are in substandard condition for operating their respective freight services.</u>

(1) Indiana Harbor Belt Railroad Company (IHB) - Belt Railway Company of Chicago (BRC): This alignment follows the IHB Main Line in a southerly direction from the IHB connection south of Tower B-12 through Franklin Park, Melrose Park, Bellwood, Broadview, LaGrange Park and LaGrange. The alignment then turns to the southeast through McCook to Summit and Argo Yard, then proceeds east into Chicago beside the IHB Stockyard Branch and BRC 59th Street Branch prior to terminating near Midway Airport.

(2) Milwaukee District West Line (MDW) - BRC: This alignment follows the MDW in an easterly direction from the WCL/NCS connection at Tower B-12 through Franklin Park, River Grove and Elmwood Park to the so-called Cicero Interlocking near Cicero Avenue in Chicago. The alignment then turns to the south beside the BRC Main Line, running between the Chicago city limits and the Town of Cicero before terminating near Midway Airport on the BRC 59th Street Branch.

(3) Wisconsin Central Limited (WCL) - CSX Transportation (CSX) - BRC: This alignment follows the WCL in a southeasterly direction from Tower B-12 through Melrose Park, River Forest and Forest Park. The alignment then turns to the east along the CSX through Oak Park into Chicago, where it turns to the south from the CSX connection to follow the same (Option 2) BRC Main Line alignment before terminating near Midway Airport on the BRC 59th Street Branch.

(4) IHB - Chicago Central and Pacific Railroad Company (CCP) - BRC: This alignment follows the same (Option 1) IHB Main Line alignment in a southerly direction from the IHB connection south of Tower B-12 through Franklin Park, Melrose Park, Bellwood and Broadview. The alignment then turns to the southeast along the CCP through Broadview, North Riverside, Riverside, Berwyn and Cicero, where it turns to the south from the CCP connection to follow the same (Option 2) BRC Main Line alignment before terminating near Midway Airport on the BRC 59th Street Branch.

Metra sought direct input from each municipality in the study area regarding interest in sponsoring a station. Narrative descriptions of these potential station sites are provided in the text of this section, along with their general locations on study-area maps. The communities in the study area have a vested interest in selecting the station sites, and have had the opportunity to review, evaluate and offer comments on this Phase I report. Transfer stations at intersections with existing Metra service are also suggested. Station-site selection is a dynamic process that will continue to evolve throughout the series of rail corridor evaluation studies. The report also provides a general overview of land use in the study area, which is comprised of mixed uses ranging from single-family residences to manufacturing plants.

3.0 FUTURE PLANS

The communities provided input regarding future development plans and concepts, in particular noting any interest in transit-oriented developments and how the new service could be an important component of each community's plans for the future. This section also includes present and projected demographic and socioeconomic characteristics. Information on the municipalities in the study area was obtained from the Northeastern Illinois Planning Commission (NIPC) for population and household forecasts, the 1990 U.S. Census for employment and other socioeconomic factors, and the municipalities themselves.

Future plans of the freight railroads and other State and Regional agencies are also included in this section. The railroads generally projected increases in freight train traffic in the near future, consistent with the fairly recent resurgence of the railroad industry. They indicated that specific long-term levels of freight traffic are difficult or impossible to predict at this time, but from discussions with the IHB and BRC in particular it appears that they will need to retain most of their existing trackage and other infrastructure to conduct their future business. This situation could require Metra to create its own parallel infrastructure in order to consider implementation of any potential ICS commuter operations.

4.0 POTENTIAL OPERATIONS

Preliminary operating plans were developed for each of the four alignment options. For comparative purposes, the same general level of service was assumed to operate on each of the four alignments. Each segment of the respective alignments was described, allowing for preliminary determination of capital infrastructure needs and estimated costs. The following parameters have been assumed for the ICS:

- Service would be operated by Metra with its own forces through a trackage-rights agreement. The exact nature of any service agreement would be subject to negotiation and agreement between Metra and the respective railroad(s).

- Service would utilize standard Metra commuter rail equipment and operating rules.

- All four alignment options would utilize the Wisconsin Central Limited (WCL) line from O'Hare Transfer Station to Tower B-12 in Franklin Park. ICS would be superimposed on Metra's North Central Service (NCS) and on WCL's freight operations. It is assumed that the WCL will be a double-track operation in this area before any ICS would begin.

- Service would operate between the existing O'Hare Transfer Station on the North Central Service and a new terminal station near Midway Airport.

- Service was assumed to operate weekdays from 6 a.m. to 12 midnight, and operate hourly in each direction during non-peak hours. During the three-hour morning and evening peak periods, service would operate on 30-minute headways in each direction.

- Stations would be unmanned; parking lots and station facilities would be maintained and policed by the host community; all stations would comply with ADA guidelines.

- Train equipment would be stored, dispatched and maintained at Western Avenue Yard, requiring deadhead moves to O'Hare at the beginning and the end of each service day.

5.0 CAPITAL IMPROVEMENTS

This section describes the capital improvements that would likely be required to create the infrastructure for a feasible commuter rail operation along each of the four alignment options. Again, keep in mind that the required improvements presented in this section are considered necessary to operate commuter trains efficiently, and are not intended to portray or imply that the current physical plants and infrastructure of the respective railroads are in substandard condition for operating their freight services. In order to support the potential operations described in the previous section, new track with ballast and sub-grade (some on embankment), passing sidings, bridges, signal systems (especially interlockings), and at-grade street crossings would have to be installed. In some cases, it is assumed that existing facilities could be rebuilt to commuter rail standards, allowing ICS trains and freight trains to operate on the same trackage.

Stations and parking facilities would be newly constructed and new rolling stock would be purchased. For all options, four train sets consisting of one diesel locomotive and two bi-level coaches are assumed, with an additional spare train set included. It is likely that some land acquisition would be necessary, particularly for park-and-ride stations or right-of-way; specific locations and costs would be determined in Phase II.

Estimated capital costs for the four potential alignments fall within an order-of-magnitude range between $176.3 and $218.0 million. This includes the estimated cost of new or upgraded trackage, related signal systems including interlockings, new or rebuilt bridges, and rebuilt/upgraded grade crossings. In all cases, these estimated costs also include a general assumption of station costs, which cannot be further defined until ridership forecasts allow more specific information on parking needs, depot sizes, platform lengths, and related items. Estimated capital costs per mile over the entire length of each potential route range between $8.9 and $10.3 million, while costs per mile of new trackage only (i.e., route segments not duplicated with existing routes) have a wider range between $11.5 and $19.2 million.

Finally, Metra's experience with single-track operations on small portions of its system indicates that such a design might not be completely reliable in terms of efficient on-time performance. For example, scheduled train meets must be timed rather precisely so that two trains operating in opposite directions on the single track will meet at the designated passing point. If there are delays for any reason to either of the trains, one train must wait on the siding until the other arrives. Consequently, a double-track scenario was also developed to estimate its comparable capital cost. The IHB-BRC route option, e.g., has an estimated capital cost of $218.0 million, but like all of the options it has only been portrayed as a single-track-with-passing-sidings operation. If a double-track operation would be deemed necessary, the estimated capital cost would increase to $351.8 million. These two figures provide the range of potential capital costs. Further studies, particularly the line capacity analyses, should help to resolve Metra's potential physical plant requirements.

IHB-BRC Option Potential Operating Scenario	Total Estimated Capital Cost
Single Track / Separated Metra Operation	$218.0 million
Double Track / Separated Metra Operation	$351.8 million

6.0 RECOMMENDATIONS

The final section of the report identifies Option 1: IHB-BRC Alignment as the only potential route that is recommended for further study. Option 1 has strong community support throughout the area that it traverses, including several communities willing to sponsor park-and-ride stations along the route. Given the usually tenuous nature of obtaining funding for any major new commuter rail service proposal, it is essential to have most or all of the local communities solidly behind the potential service. The IHB-BRC alignment duplicates the least amount of existing service for all options studied. It should be understood that this conclusion and recommendation is qualified based on the findings in this Study phase alone, and does not account for any "unknowns" that may emerge from more detailed studies. Furthermore, at the present time the results of this Study phase cannot and should not be construed as indicating that the recommended IHB-BRC route will be considered operationally viable or even desirable at the completion of the remaining Study phases.

The primary difficulties with Option 2: MDW-BRC Alignment are the fact that more than half of the route is essentially redundant, and there would be no new park-and-ride facilities sponsored by local communities. Option 3: WCL-CSX-BRC Alignment and Option 4: IHB-CCP-BRC Alignment each have two communities that are opposed to additional trains (including commuter trains) running on the existing freight tracks, and therefore do not desire park-and-ride stations. Metra generally does not wish to pursue potential new routes that have only limited or mixed support. Finally, the City of Chicago is studying the BRC Main Line corridor as part of the Mid-City Transitway, which would become part of the CTA network of rapid transit lines. Options 2, 3, and 4 would conflict with the Mid-City Transitway plans (the project is part of the 2020 Regional Transportation Plan), as each alignment would utilize portions of the BRC Main Line route.

It is recommended that Option 1 continue first with a Major Investment Study (MIS) and afterward with a Phase II Feasibility Study. The MIS process has a public forum component that will substantiate the level of public support. It would try to resolve any issues over whether or not commuter rail can be a useful contributor to congestion mitigation and improved air quality in this relatively densely populated suburban subregion. [Note that in TEA-21, the successor to ISTEA, the terminology has changed but the function remains similar.] The MIS process would also determine projected ridership in order to justify the probable capital expenditures. The Phase II Study would then examine environmental aspects of the potential station sites, perform detailed line capacity analyses to get a better understanding of infrastructure needs, and seek solutions to resolve potential freight/passenger train conflicts in order to make the proposed service reliable.

1.0 INTRODUCTION

The Inner Circumferential Commuter Rail Feasibility Study follows on the heels of the very successful effort by Metra to initiate passenger service on the North Central Service Line in 1996. The Inner Circumferential Service (ICS) concept offers an opportunity to provide non-CBD-oriented commuter rail service to the western Cook County suburbs while addressing the region's emerging demographic trends and changing economic activities, both of which are taxing the existing transportation network's capacity. This effort was sponsored jointly by the members of the West Central and North Central Councils of Mayors, who sought and obtained the necessary funding for Metra to conduct the Study on their behalf.

This Study presents a proactive approach to solving some of the Chicago area's mobility needs by studying ways to provide a network commuter rail system, enhancing the present radial CBD-oriented rail system. Furthermore, the results could help to support both community-based and regional efforts to address the requirements contained in the Clean Air Act Amendments of 1990.

The specific objectives that have been identified for the Study are:

- Evaluate and compare the physical, operational, and financial feasibility of a new Metra service
- Identify the most cost-effective means for linking with existing service
- Recommend the course of further study to be pursued

The Study is organized into four major tasks or milestones, all aimed at providing a methodological and objective means of formulating Study recommendations. This process is a collaborative effort among Metra, the two Councils of Mayors, the respective freight railroads, the local communities, and the consulting team. Community participation and consensus-building are underlying tenets of the Study, consistent with Metra's proactive public outreach process. This Phase I Feasibility Study is the first step in a longer process to ascertain not only the potential demand for this particular potential new service, but also how it might reach eventual implementation. This first step focuses largely on information-gathering to "see if it could work", and also includes an early look at potential capital costs. The organization utilized in this Study:

- Existing Conditions
- Future Plans
- Potential Operations
- Capital Improvements
- Recommendations

1.0.1 Study Area

The study area is comprised of the near-western suburbs in Cook County and portions of the west side of the City of Chicago. This area includes both the West Central and North Central Councils of Mayors, who represent 35 municipalities that contributed funds for this Feasibility Study. The study area includes nine townships within Cook County and seven Chicago Community Areas (CCAs) within the City of Chicago.

The communities is this area of the northeastern Illinois region, situated just outside of the limits of the City of Chicago, are often characterized as "older" or "mature" suburbs. There is a wide range of socioeconomic circumstances among them, as well as a variety of existing land uses, with many characteristically thought of as either mostly residential or industrial. Their locations are portrayed on Figure 1; Table 1 that follows the map lists the townships, municipalities and CCAs, and identifies whether or not they are directly affected by one or more of the four alignment options.

While most of these communities are already served by CBD-oriented Metra service (either from a station in their own community or their neighbor's), there might be a demand for north-south rail service that could serve transportation needs within this area, particularly to access employment locations that are not in Chicago's downtown. Although the suggested terminals for the potential commuter rail service are O'Hare and Midway Airports, the ICS that is under study should not be considered as one that would merely provide an "airport-shuttle" service. The potential ICS would also provide links to as many as five existing Metra routes through facilities for commuters to transfer between routes, thereby creating a network that would expand the possibilities for utilization of commuter rail service.

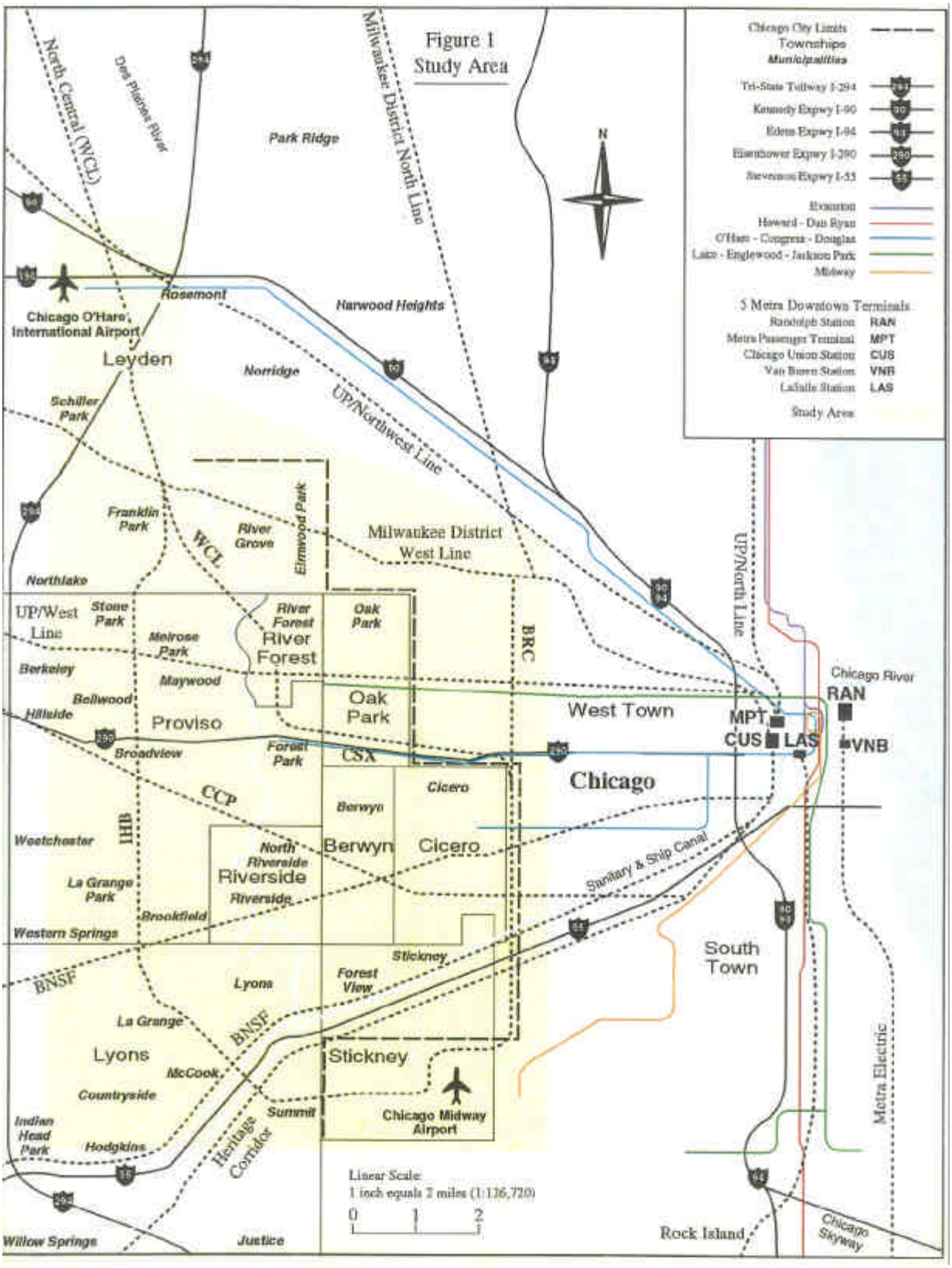
Figure 1
Study Area
Chicago City Limits
Townships
Municipalities
Tri-State Tollway I-294
Kennedy Expwy I-90
Edens Expwy I-94
Eisenhower Expwy I-290
Stevenson Expwy I-55
Evanston
Howard - Dan Ryan
O'Hare - Congress - Douglas
Lake - Englewood - Jackson Park
Midway
5 Metra Downtown Terminals
Randolph Station RAN
Metra Passenger Terminal MPT
Chicago Union Station CUS
Van Buren Station VNB
LaSalle Station LAS
Study Area
North Central (WCL)
Des Plaines River
Milwaukee District North Line
Park Ridge
Rosemont
Harwood Heights
Chicago O'Hare International Airport
Leyden
Norridge
Schiller Park
UP/Northwest Line
Franklin Park
River Grove
Elmwood Park
Milwaukee District West Line
Northlake
UP/West Line
Stone Park
Melrose Park
River Forest
Oak Park
Berkeley
Maywood
Bellwood
Hillside
Proviso
Broadview
Forest Park
CSX
BRC
UP/North Line
Chicago River
RAN
MPT
CUS
LAS
VNB
West Town
Chicago
Cicero
Berwyn
North Riverside
Riverside
Brookfield
Western Springs
La Grange Park
Weatchester
IHH
CCP
Sanitary & Ship Canal
South Town
Stickney
Forest View
Lyons
La Grange
BNSF
McCook
Countryside
Summit
Chicago Midway Airport
Indian Head Park
Hodgkins
Heritage Corridor
Metra Electric
Linear Scale:
1 inch equals 2 miles (1:126,720)
0 1 2
Willow Springs
Justice
Rock Island
Chicago Skyway

Table 1
Townships and Affected Alignments

TOWNSHIP Municipality	Directly (D) or Not Directly (N) Affected *	Alignment **
LEYDEN		
Rosemont	D	All Alignments
Schiller Park	D	All Alignments
Franklin Park	D	All Alignments
Elmwood Park	D	MDW-BRC
Northlake	N	IHB-BRC
River Grove	D	MDW-BRC
RIVER FOREST		
River Forest	D	WCL-CSX-BRC
PROVISO		
Stone Park	N	IHB-BRC
Melrose Park	D	IHB-BRC / IHB-CCP-BRC WCL-CSX-BRC
Berkeley	N	IHB-BRC
Bellwood	D	IHB-BRC / IHB-CCP-BRC
Maywood	N	IHB-BRC / IHB-CCP-BRC
Hillside	N	IHB-BRC / IHB-CCP-BRC
Forest Park	D	WCL-CSX-BRC
Broadview	D	IHB-BRC / IHB-CCP-BRC
Westchester	N	IHB-BRC / IHB-CCP-BRC
LaGrange Park	D	IHB-BRC
Brookfield	N	IHB-BRC
OAK PARK		
Oak Park	D	WCL-CSX-BRC
BERWYN		
Berwyn	D	IHB-CCP-BRC

TOWNSHIP Municipality	Directly (D) or Not Directly (N) Affected *	Alignment **
RIVERSIDE		
Riverside	D	IHB-CCP-BRC
North Riverside	D	IHB-CCP-BRC
CICERO		
Cicero	D	MDW-BRC / WCL-CSX-BRC IHB-CCP-BRC
LYONS		
Western Springs	N	IHB-BRC
LaGrange	D	IHB-BRC
Lyons	N	IHB-BRC
McCook	D	IHB-BRC
Countryside	N	IHB-BRC
Summit	D	IHB-BRC
Indian Head Park	N	IHB-BRC
Hodgkins	N	IHB-BRC
STICKNEY		
Stickney	N	BRC
Forest View	N	BRC
CHICAGO		
O'Hare	D	All Alignments
Belmont Cragin	D	BRC
Humboldt Park	D	BRC
W Garfield Park	D	BRC
Garfield Ridge	D	IHB-BRC
Archer Heights	D	MDW-BRC / WCL-CSX-BRC IHB-CCP-BRC
West Elsdon	D	All Alignments

* "Directly Affected" communities are located on the railroad line indicated, while "Not Directly Affected" communties are nearby in sphere of influence.

** Initials of railroad companies are as follows:

BRC: Belt Railway Company of Chicago
CCP: Chicago Central and Pacific Railroad Company
CSX: CSX Transportation Incorporated
IHB: Indiana Harbor Belt Railroad Company
MDW: Milwaukee District West Line
WCL: Wisconsin Central Limited

2.0 EXISTING CONDITIONS

This section documents the physical and operating characteristics of each potential route through the Study corridor. This initial step is critical to the consideration of instituting commuter rail service, since it provides an early indication of what new facilities might be required.

The inventory of existing conditions relied primarily on existing resources from Metra, the various freight railroads involved, communities along each of the routes, and regional planning organizations. The STV consultant team walked, photographed and videotaped the condition of the following specific physical factors or elements for each potential routing alignment:

- number of main line tracks, all specialized track sections, trackbed condition and horizontal and vertical clearances
- types of signal systems in use and description of all interlockings
- locations and types of signals at grade crossings
- freight railroad operating characteristics and service levels
- specific opportunities for transfers with existing Metra service
- relationship with other public transportation providers
- general topography, wetland locations, and geological conditions
- any potential utility conflicts
- accessibility for construction
- adjacent land uses and general accessibility for Metra commuters

In addition, data sources such as each individual freight railroad, the corridor communities, the Northeastern Illinois Planning Commission (NIPC) and the Chicago Area Transportation Study (CATS) were tapped for input to the inventory.

2.1 ALIGNMENT OPTIONS

A number of alignment options were initially considered for inclusion in this Study. All of the alignment options assume operations on the Wisconsin Central Limited (WCL), beginning at the North Central Service (NCS) O'Hare Transfer Station and continuing south to Tower B-12 in Franklin Park. A broader list of potential alternatives to provide commuter rail service in the Study corridor underwent a cursory review and was narrowed to four primary options. Two options that were dismissed are noteworthy.

The City of Northlake proposed an alignment utilizing the Union Pacific Railroad (UP) right-of-way which traverses its industrial district. This line extends north from the UP's Proviso Yard as the UP Milwaukee

Subdivision, runs around the west side of O'Hare Airport, then turns northeast toward Northbrook. Although this line could have the potential as a circumferential service north of the study area, it does not continue to the south directly. Therefore, on a system-wide basis it does not compare favorably with the nearby IHB route which links with the WCL/NCS and continues more directly to the south from the area of Proviso Yard.

Another alignment option that was considered initially was an IHB-Burlington Northern Santa Fe (BNSF)-BRC alignment. This alignment would utilize the IHB right-of-way from Franklin Park to LaGrange where new track connections would be made to the existing Metra BNSF line. Inner Circumferential Service (ICS) trains would be superimposed on BNSF commuter and freight operations from LaGrange to Cicero. Although this alignment is triple-tracked, it serves approximately 96 commuter trains, 62 freight trains, and several Amtrak trains each weekday. New track connections would be required to the BRC in Cicero, where ICS trains would turn south toward Midway Airport. This option was eliminated from further consideration due to capacity constraints on the BNSF. For similar reasons, potential use of the UP West Line to connect the IHB to the BRC was also rejected.

The four primary options south of Tower B-12 are described below and portrayed on Figure 2. At this point in time, none of the information that was generously supplied by the respective railroads should be taken to imply sponsorship or support of the ICS concept by any of them. Also, the critiques provided in this section of the report are not intended to portray or imply in any way that their current physical plants and infrastructure are in substandard condition for operating their respective freight services.

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(2) Milwaukee District West Line (MDW) - BRC: This alignment follows the MDW in an easterly direction from the WCL/NCS connection at Tower B-12 through Franklin Park, River Grove and Elmwood Park to the so-called Cicero Interlocking near Cicero Avenue in Chicago. The alignment then turns to the south beside the BRC Main Line, running between the Chicago city limits and the Town of Cicero before terminating near Midway Airport on the BRC 59th Street Branch.

(3) Wisconsin Central Limited (WCL) - CSX Transportation (CSX) - BRC: This alignment follows the WCL in a southeasterly direction from Tower B-12 through Melrose Park, River Forest and Forest Park. The alignment then turns to the east along the CSX through Oak Park into Chicago, where it turns to the south from the CSX connection to follow the same (Option 2) BRC Main Line alignment before terminating near Midway Airport on the BRC 59th Street Branch.

(4) IHB - Chicago Central and Pacific Railroad Company (CCP) - BRC: This alignment follows the same (Option 1) IHB Main Line alignment in a southerly direction from the IHB connection south of Tower B-12 through Franklin Park, Melrose Park, Bellwood and Broadview. The alignment then turns to the southeast along the CCP through Broadview, North Riverside, Riverside, Berwyn and Cicero, where it turns to the south from the CCP connection to follow the same (Option 2) BRC Main Line alignment before terminating near Midway Airport on the BRC 59th Street Branch.

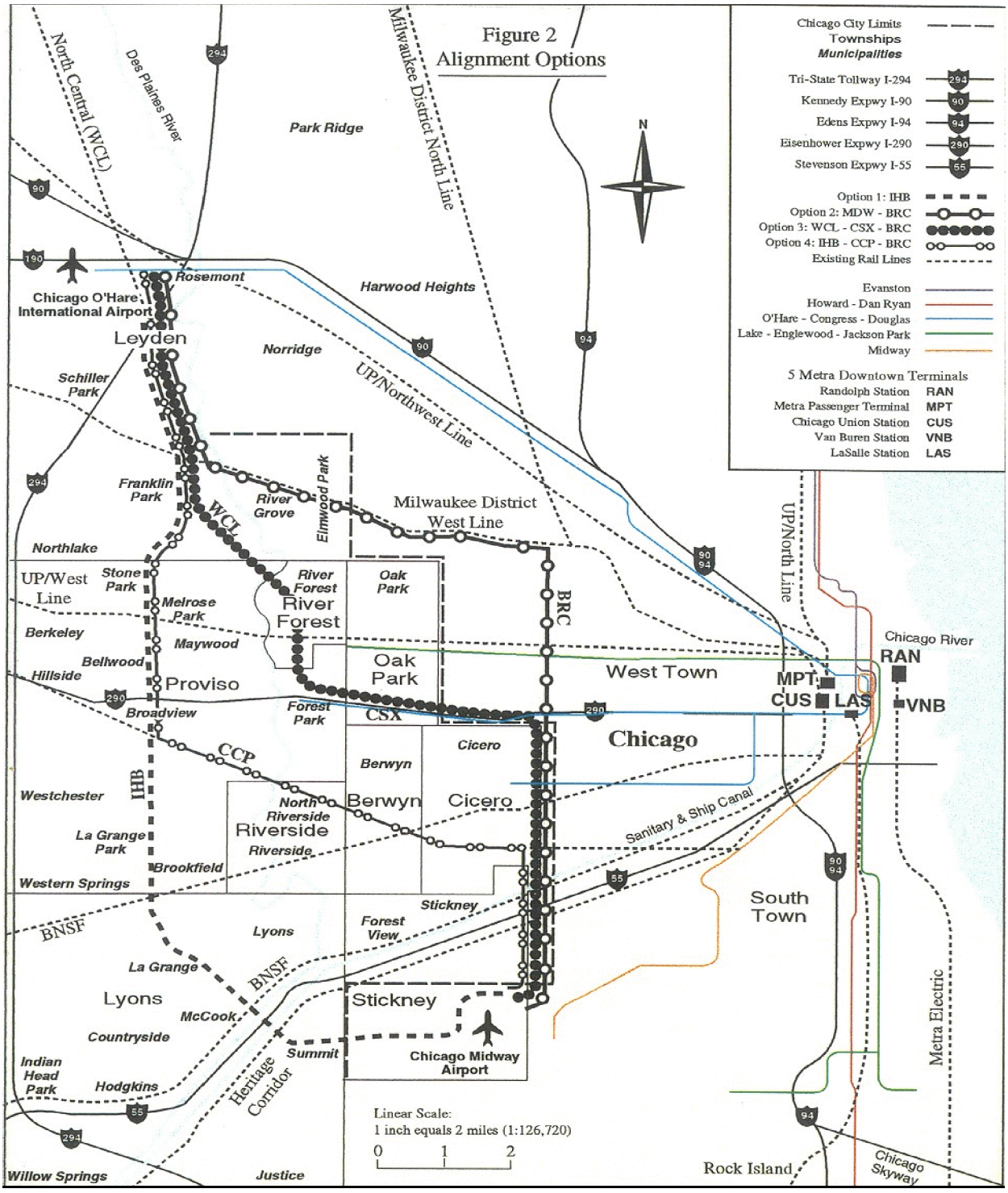


Figure 2
Alignment Options
Chicago City Limits
Townships
Municipalities
Tri-State Tollway I-294
Kennedy Expwy I-90
Edens Expwy I-94
Eisenhower Expwy I-290
Stevenson Expwy I-55
Option 1: IHB
Option 2: MDW - BRC
Option 3: WCL - CSX - BRC
Option 4: IHB - CCP - BRC
Existing Rail Lines
Evanston
Howard - Dan Ryan
O'Hare - Congress - Douglas
Lake - Englewood - Jackson Park
Midway
5 Metra Downtown Terminals
Randolph Station RAN
Metra Passenger Terminal MPT
Chicago Union Station CUS
Van Buren Station VNB
LaSalle Station LAS
N
North Central (WCL)
Des Plaines River
Milwaukee District North Line
Park Ridge
Harwood Heights
Norridge
Rosemont
Chicago O'Hare International Airport
Leyden
Schiller Park
UP/Northwest Line
Franklin Park
River Grove
Elmwood Park
WCL
Milwaukee District West Line
Northlake
UP/West Line
Stone Park
Melrose Park
River Forest
Oak Park
Berkeley
Maywood
Bellwood
Hillside
Proviso
Broadview
Forest Park
CSX
BRC
UP/North Line
Chicago River
RAN
MPT
CUS
LAS
VNB
West Town
Chicago
CCP
IHB
Berwyn
Cicero
Westchester
North Riverside
Riverside
La Grange Park
Brookfield
Western Springs
Sanitary & Ship Canal
South Town
Stickney
Forest View
Lyons
BNSF
La Grange
McCook
Countryside
Indian Head Park
Hodgkins
Summit
Heritage Corridor
Chicago Midway Airport
Metra Electric
Linear Scale:
1 inch equals 2 miles (1:126,720)
0 1 2
Willow Springs
Justice
Rock Island
Chicago Skyway

2.2 DESCRIPTION OF ALIGNMENTS

Each of the alignments is described in detail below. A summary comparative table of the elements of the various physical plants and intensity of freight operations is provided in Appendix A.

2.2.1 Indiana Harbor Belt (IHB)

The IHB is a terminal freight railroad with headquarters in Hammond, Indiana. The IHB operates over 450 miles of track (143 route miles) in northeastern Illinois and northwestern Indiana, handling freight between interconnecting railroads and serving numerous industries. The IHB routes examined in this Study include the Main Line beginning just south of its connection to the MDW in Franklin Park to the connection with the Stockyard Branch at Argo Yard in Summit, and the Stockyard Branch from Argo Yard to the joint running with the BRC to Midway Airport.

2.2.1.1 Main Line

The IHB Main Line right-of-way is 100 feet wide. The line runs through predominantly industrial areas with approximately 25% of the right-of-way bordering residential areas. The IHB Main Line route is all double-tracked. There are several sidings as well as the so-called #21 running track; the latter extends from CP Rose to McCook Yard (approximately 8.6 miles). The single-track connection to the WCL winds through industrial buildings from a point just south of the MDW. At the other end, the WCL connects to the IHB at a point south of Chestnut Street where it joins the Main Line. The Main Line track alignment is relatively straight, although there are eleven curves with a radius ranging between 1° and 2° 30', with the connection to the MDW being a 3° curve.

The rail is mostly 115-pound continuous welded rail (CWR) that was rolled and placed into service between 1968 and 1973. The Main Line has 13 grade-separated road crossings and ten at-grade crossings; the latter are all protected by flashing lights and gates. There are eight overhead bridges for railroads and highways and 14 bridges over streets, railroads and waterways. There are two at-grade crossings with other railroads as well. All railroad bridges are rated for at least 263,000-pound loads; the most restrictive overhead bridge clearance is 20' 4". The Main Line has Automatic Block Signals (ABS) to control the movement of trains. The maximum operating speed is 30 m.p.h. In 1996, 55 to 70 freight trains operated daily over this trackage.

2.2.1.2 Stockyard Branch

The IHB Stockyard Branch connects to the IHB Main Line in a southward direction in Summit. It then runs easterly between 59th and 60th Streets to the BRC 59th Street Branch at approximately Nashville Avenue in Chicago. In general, the right-of-way is approximately 60 feet wide with some sections of the right-of-way being 100 feet wide. Most of the line runs through industrial areas, with approximately 15% of the right-of-way bordering residential areas.

The IHB has recently completed abandonment of its trackage east of Narragansett Avenue on the Stockyard Branch. This single-track line is now connected to the BRC 59th Street Branch near Nashville Avenue. New homes have been built on the former IHB property between Narragansett and Austin Avenues. The track is mostly 105-pound jointed rail that was rolled and placed into service between 1937 and 1957. The

Stockyard Branch track has two grade separations, one for a roadway and one for pedestrians. There is one grade crossing protected by flashing lights and gates. The most restrictive overhead bridge clearance is 20' 4". The Stockyard Branch is unsignaled, controlled by a dispatcher. The maximum operating speed is 30 m.p.h. In 1996, six to eight freight trains operated daily over this trackage.

2.2.2 Metra Milwaukee District West Line (MDW)

Two existing commuter lines operate on portions of trackage in the study area, the MDW between Chicago and Elgin, and the North Central Service (NCS) between Chicago and Antioch. The MDW has commuter service for the full length of the study area, extending from the connection with the BRC at Cicero Interlocking to the connection with the IHB and WCL at Tower B-12. This portion of the MDW right-of-way begins at Tower B-12 in Franklin Park and extends 6.2 miles through River Grove and Elmwood Park to Cicero Interlocking just west of Cragin Junction in Chicago. The right-of-way is generally 100 feet wide. The line primarily runs through industrial areas with residential areas, parks and cemeteries interspersed along adjoining properties.

The MDW route is a triple-track Main Line, with the southernmost track currently used exclusively for freight. The track alignment is relatively straight with six curves; there is a 3° 30' curve, a 3° curve, a 2° curve and three curves of 1° or less. The rail is 112-pound and heavier, mostly jointed with some CWR. There are twelve public grade crossings that are all protected by flashing lights, bells and gates, and one private grade crossing protected by flashing lights and gates. There are eight bridges over streets and waterways. All railroad bridges are rated for at least 263,000-pound loads. There is one overhead roadway bridge. There is ABS control of train movements. The maximum operating speed is 70 m.p.h. In 1996, 73 weekday commuter trains (including NCS) and six freight trains operated daily over this trackage.

2.2.3 The Belt Railway Company of Chicago (BRC)

The BRC is a terminal freight railroad with headquarters in Bedford Park, Illinois. The BRC operates nearly 350 miles of track (125 route miles) in the Chicago area. The two BRC track sections in the study area are the Main Line and the 59th Street Branch.

2.2.3.1 Main Line

The portion of the BRC Main Line route examined in this Study begins at Cicero Interlocking on the north, which is the connection with the MDW. The route generally continues southward approximately 2 blocks to the east of and parallel to Cicero Avenue. The BRC right-of-way is in the City of Chicago except between Roosevelt Road and 39th Street, where the right-of-way is the boundary between Cicero on the west and Chicago on the east. In general the BRC right-of-way is 100 feet wide, although there are several yard locations with wider rights-of-way. The Main Line runs mostly through industrial areas. The BRC Main Line route is comprised of double track except for the connecting track with Metra, which is single track. The Main Line track alignment is relatively straight, although there are over a dozen short curves between 1° and 9°, in addition to the 7° curve at the connection with Metra. The rail is mostly 115-pound, with a mixture of jointed, thermite-welded and electric-flash-welded rail. It was placed into service from the 1950s to the 1990s. Some of the rail has a considerable amount of metal flow.

The Main Line is grade-separated north of Archer Avenue. There are grade crossings with Archer Avenue and 55th, 59th and 63rd Streets, all protected by flashing lights and gates. There are two overhead railroad bridges, one overhead highway bridge and 35 bridges over streets, railroads and waterways. All railroad bridges are rated for at least 263,000-pound loads; 19' 10" is the most restrictive overhead clearance. The Main Line movement of trains is controlled by a mixture of Yard Limits, Controlled Block Signals (CBS) and ABS. The maximum operating speed is 25 m.p.h. In 1996, approximately 20 freight trains operated daily over the trackage between Cragin and Hawthorne (31st Street), while 60 freights operated daily over the trackage between Hawthorne and 55th Street.

2.2.3.2 59th Street Branch

The BRC 59th Street Branch diverges from the Main Line north of 53rd Street. It runs west between 53rd Place and 54th Street to just west of Central Avenue, then south near Major Avenue to 58th Street. The branch again turns west and runs between 59th and 60th Streets to the connection with the IHB Stockyard Branch near Nashville Avenue. The BRC right-of-way for the entire 59th Street Branch is within the City of Chicago. The right-of-way, in general, is approximately 100 feet wide. The line runs through mostly residential areas.

The 59th Street Branch is a double-track route except for the single connecting track with the Main Line. The track alignment has three curves of 3^{o}, 6^{o} 15' and 5^{o} 30' from the junction with the Main Line; there is also a 4^{o} curve where the IHB Stockyard Branch and 59th Street Branch routes diverge. The rail is mostly 115-pound CWR. The 59th Street Branch track has one grade separation, a bridge over Cicero Avenue, and seven grade crossings that are all protected by flashing lights and gates. There are no overhead bridges. There is CBS control of train movements on the 59th Street Branch, with a maximum operating speed of 25 m.p.h. In 1996, 30 to 40 BRC freight trains operated daily over this trackage, plus the six to eight trains originating from the IHB Stockyard Branch.

2.2.4 Wisconsin Central Limited (WCL)

WCL is the largest American regional railroad, operating nearly 3,000 miles of track in North America. The Chicago Subdivision carries NCS commuter service north to Antioch from the connection with the MDW at Tower B-12. A continuation of the WCL route to the CSX connection in Forest Park represents another alternative alignment in the Study. This portion of the WCL right-of-way begins at Tower B-12 in Franklin Park and extends through River Grove, Melrose Park, a Cook County Forest Preserve, and River Forest to the CSX connection at Madison Street (the boundary between River Forest on the north and Forest Park on the south). The WCL right-of-way is 66 feet wide west and north of Chicago Avenue, and 100 to 120 feet wide south of Chicago Avenue to the CSX connection. The line runs through mostly industrial areas on the northern portion, but mostly residential areas on the southern portion.

The WCL is a single-track route (the roadbed remains from the former second track), except near the point of connection with the CSX which is a double-track route. The track alignment is relatively straight, with two curves at 3^{o} and 2^{o}. The rail is 115-pound CWR, placed into service in 1980. There are twelve grade crossings that are all protected by flashing lights and gates. There are seven bridges over streets, railroads and waterways. All railroad bridges are rated for at least 263,000-pound loads; the most restrictive overhead bridge clearance is 18' 4". Yard Limits control the movement of trains, and the maximum operating speed is 30 m.p.h. In 1996, six to eight freight trains operated daily over this trackage.

2.2.5 CSX Transportation (CSX)

The CSX is the third-largest railroad in the United States, operating over 18,000 miles of track in the eastern portion of the country. CSX headquarters are in Jacksonville, Florida; Chicago is the northwestern limit of its operations. (It should be noted that the pending acquisition of certain portions of the Conrail system by CSX is not anticipated by them to impact their operations in the study area.) The CSX route is a continuation from the south end of the WCL route. The CSX right-of-way begins at Madison Street, continues south and east through Forest Park and Oak Park to the connection with the BRC east of Cicero Avenue in Chicago. The right-of-way is 100 feet wide north of the Eisenhower Expressway and 60 feet wide through non-yard areas south of the Eisenhower Expressway to Austin Avenue. East of Austin Avenue it varies in width from a 100-foot minimum width to the BRC connection, which is on an approximate 40-foot right-of-way.

The line runs through mostly industrial areas, with the Eisenhower Expressway and the Forest Park Branch of the CTA Blue Line located on the north side of the right-of-way for approximately half of its route . The remainder of the right-of-way is bounded by residential neighborhoods. The CSX is a double-track route except for the connecting track with the BRC which is single track. The track alignment is relatively straight except for a 3° curve from the WCL connection from the south to the east, followed by a 2° 45' curve over the Eisenhower Expressway and the CTA tracks and a 15° curve at the BRC connection.

The rail is mostly 115-pound jointed rail placed into service in the 1950s and 1960s. There are 0.4 miles of 112-pound rail in the westbound track at the junction with the WCL and 0.6 miles of 112-pound rail in the eastbound track at the connection to the BRC. There are ten overhead street bridges and four railroad bridges over streets. All railroad bridges are rated for at least Cooper's E80 (structural loading criteria), which exceeds the maximum weight of railway vehicles operated in North America. The most restrictive overhead bridge clearance is 18' 4". There is ABS control of train movements and the maximum operating speed is 25 m.p.h. In 1996, 10 to 12 freight trains operated daily over this trackage.

2.2.6 Chicago Central and Pacific (CCP)

The CCP is a regional freight railroad with operating headquarters in Waterloo, Iowa. It was recently re-acquired by the Illinois Central Railroad, which in turn was more recently acquired by Canadian National (CN), but continues to operate as a separate entity for the time being. The CCP has nearly 800 miles of track extending from Chicago to Omaha, Nebraska. The CCP right-of-way runs southeast from the connection with the IHB through Broadview, North Riverside, Riverside and Berwyn, where it turns east through Cicero to the connection with the BRC in Chicago. The right-of-way is generally 100 feet wide, except through yard areas. The line runs through mostly residential areas with some areas of light to heavy industry.

The CCP is a double-track route between the BRC east of Cicero Avenue and the IHB at Broadview; it becomes single-track about one-half mile east of the bridge over the IHB, at the point where the connecting track to the IHB begins. The CCP track alignment is relatively straight, containing one 1° curve and one 1° 30' curve. The rail is mostly 112-pound jointed rail and was placed into service between 1940 and 1946. There are eight grade crossings all protected by flashing lights, and two also protected by gates. There are 14 bridges over pedestrian subways, streets, railroads and waterways, with no overhead bridges. All railroad bridges are rated for 263,000-pound loads.. There is ABS control of train movements; with the current maximum operating speed 25 m.p.h. In 1996, about 10 freight trains operated daily over this trackage.

2.3 LAND USE AND ZONING

Land use and zoning in the study corridor are also important components of existing conditions, since they could play a key role in future study tasks or milestones. The review of land uses and on-site visits to communities along each of the alignment options revealed a wide variety of uses and zoning ordinances. A mixed use of land, ranging from single-family residences to manufacturing plants, exists in the study area. The following provides a general overview of land uses in the study area in three broad categories. This is followed by brief descriptions of the land use and zoning surrounding potential station sites, by alignment options, that have been identified in this study task. The alignments and potential station locations are identified on Figure 3, with each potential station site correspondingly numbered in the text.

2.3.1 Commercial

Each of the municipalities in the study area have Central Business Districts and commercial development to provide shopping and services to their communities. The type of development varies to serve the needs of the neighborhood in which it resides. The potential inception of rail service brings anticipation of community and neighborhood revitalization, future economic growth, and development opportunities throughout these corridors.

2.3.2 Residential

The predominant residential uses in the study area are single-family housing, with multi-unit dwellings more scattered and often intermixed. According to a recent survey taken by the Village of LaGrange, the convenience of rail transportation was the criteria most often cited by residents in choosing to live in LaGrange. Presuming this is found in other communities as well, the potential for new rail service could influence future residential decision-making.

2.3.3 Manufacturing

There are active and varied manufacturing-related activities along each of the alignment options. The study area is an active industrial area with large manufacturers such as Panasonic, Ford, General Motors, and Zenith. There is also a Jewel distribution center, a Frito Lay plant and a Brach's Candy factory in the study area. These factories, plants and warehouses are employment generators; potential rail service could benefit both the employees and employers by providing a new journey-to-work transportation alternative.

2.4 POTENTIAL STATION LOCATIONS

Station-site selection is a dynamic process that will continue to evolve throughout the corridor-evaluation study process. The communities in the study area have a vested interest in selecting the station sites, and have had the opportunity to review, evaluate and offer comments. The potential station locations will be further evaluated in more detail in later Study phases. This list of potential locations has been developed from suggestions and expressed interest by the respective communities, but it should be understood that any and all locations are subject to change. The general locations (no specific sites) are portrayed on Figure 3. Note that locations with two community names indicates that they lie on the corporate boundary between the municipalities; the suggestion by one of them does not necessarily indicate concurrence by the other.

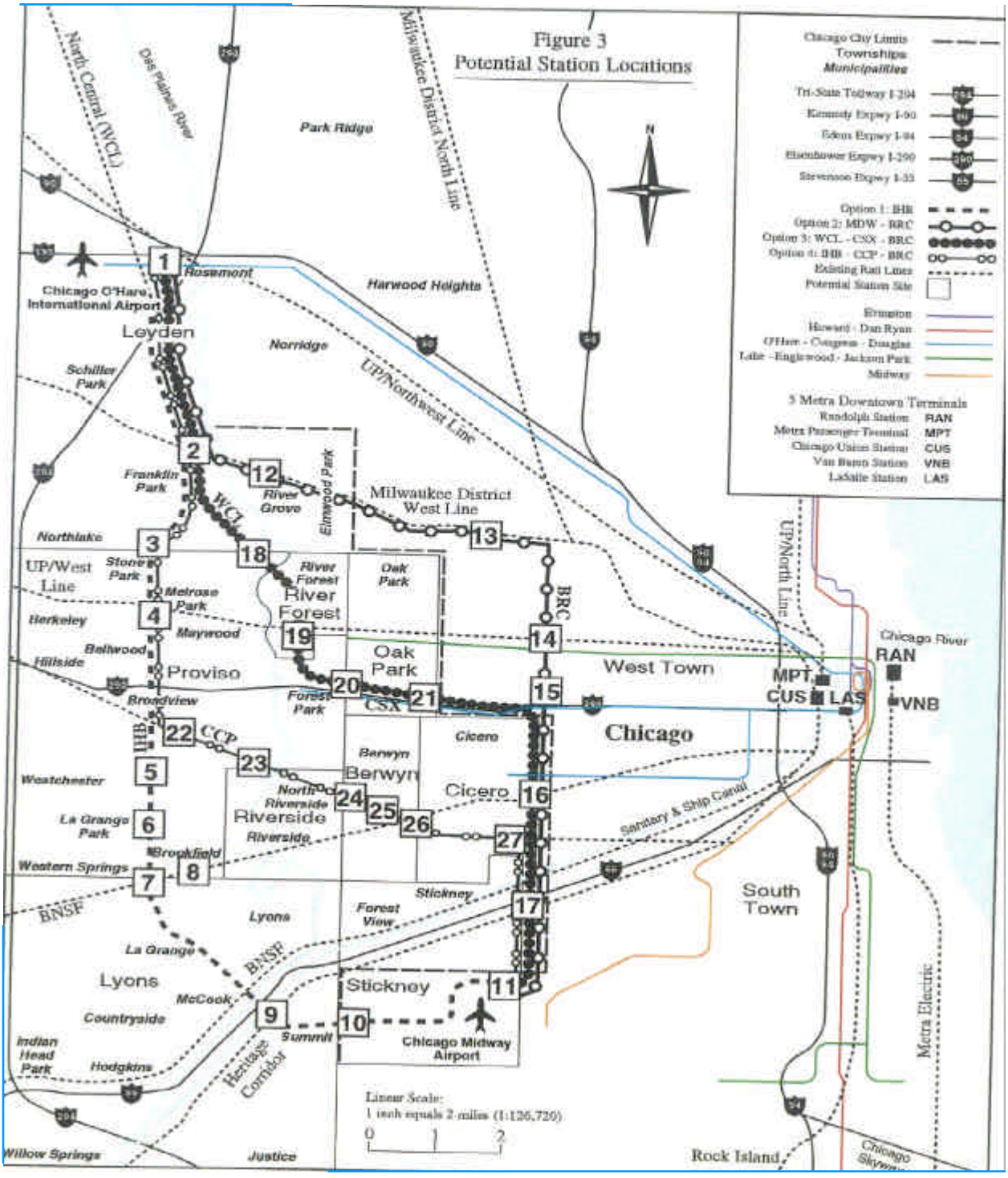


Figure 3
Potential Station Locations
Chicago City Limits
Townships
Municipalities
Tri-State Tollway I-294
Kennedy Expwy I-90
Edens Expwy I-94
Eisenhower Expwy I-290
Stevenson Expwy I-55
Option 1: BRC
Option 2: MDW - BRC
Option 3: WCL - CSX - BRC
Option 4: BRC - CCP - BRC
Existing Rail Lines
Potential Station Site
Ryerson
Howard - Dan Ryan
O'Hare - Congress - Douglas
Lake - Englewood - Jackson Park
Midway
3 Metra Downtown Terminals
Randolph Station RAN
Metra Passenger Terminal MPT
Chicago Union Station CUS
Van Buren Station VNB
LaSalle Station LAS
North Central (WCL)
Des Plaines River
Milwaukee District North Line
Park Ridge
Rosemont
Chicago O'Hare International Airport
Leyden
Harwood Heights
Norridge
Schiller Park
UP/Northwest Line
Franklin Park
WCL
River Grove
Elmwood Park
Milwaukee District West Line
Northlake
UP/West Line
Stone Park
Melrose Park
Maywood
Berkeley
Bellwood
Hillside
Proviso
Broadview
River Forest
Oak Park
Forest Park
CSX
BRC
UP/North Line
Chicago River
RAN
MPT
CUS
LAS
VNB
West Town
Chicago
Cicero
Berwyn
Westchester
La Grange Park
North Riverside
Riverside
Brookfield
Western Springs
Sanitary & Ship Canal
South Town
Stickney
Forest View
Lyons
La Grange
BNSF
McCook
Countryside
Summit
Chicago Midway Airport
Indian Head Park
Hodgkins
Heritage Corridor
Metra Electric
Linear Scale:
1 inch equals 2 miles (1:126,720)
0
1
2
Willow Springs
Justice
Rock Island
Chicago Skyway

STATION KEY FOR FIGURE 3

Option 1: IHB-BRC Alignment

(1) Rosemont/Chicago	Existing O'Hare Transfer Station on NCS
(2) Franklin Park	Transfers with MDW
(3) Melrose Park	North Avenue
(4) Bellwood	Transfers with UP West Line
(5) Broadview	Cermak Road
(6) LaGrange Park 31st Street	
(7) LaGrange	Transfers with BNSF
(8) Brookfield	Relocated Congress Park BNSF Station (Alternative to #7)
(9) Summit	Transfers with HC
(10) Summit/Chicago	Harlem Avenue
(11) Chicago	Midway Airport Terminal Station

Option 2: MDW-BRC Alignment

(1) Rosemont/Chicago	Existing O'Hare Transfer Station on NCS
(12) River Grove	Existing River Grove Station on MDW
(13) Chicago	Existing Cragin Station on MDW
(14) Chicago	Transfers with UP West Line
(15) Chicago	Transfers with CTA Blue Line (Forest Park Branch)
(16) Cicero/Chicago	Transfers with BNSF
(17) Chicago	Transfers with HC
(11) Chicago	Midway Airport Terminal Station

Option 3: WCL-CSX-BRC Alignment

(1) Rosemont/Chicago	Existing O'Hare Transfer Station on NCS
(2) Franklin Park	Transfers with MDW
(18) Melrose Park	Maywood Park
(19) River Forest	Transfers with UP West Line
(20) Oak Park/Forest Park	Harlem Avenue
(21) Oak Park/Chicago	Austin Boulevard
(16) Cicero/Chicago	Transfers with BNSF
(17) Chicago	Transfers with HC
(11) Chicago	Midway Airport Terminal Station

Option 4: IHB-CCP-BRC Alignment

(1) Rosemont/Chicago	Existing O'Hare Transfer Station on NCS
(2) Franklin Park	Transfers with MDW
(3) Melrose Park	North Avenue
(4) Bellwood	Transfers with UP West Line
(22) Broadview	17th Avenue
(23) Hines (uninc.)	1st Avenue
(24) Berwyn/Riverside	Harlem Avenue
(25) Berwyn	Oak Park Avenue (Alternative to #24)
(26) Berwyn	Transfers with BNSF
(27) Cicero	Sportsman's Park
(17) Chicago	Transfers with HC
(11) Chicago	Midway Airport Terminal Station

2.4.1 Option 1: IHB-BRC Alignment

(1) Rosemont/Chicago: Existing O'Hare Transfer Station on Metra North Central Service (NCS)
This potential station would provide a connection with the NCS at the existing O'Hare Transfer Station. The existing station is located near a long-term airport parking lot, which is not intended for use by commuters. A shuttle bus service currently serves the terminal station of the Airport Transit System (ATS) in another nearby long-term airport lot. Passengers on the new rail service could use the same bus/ATS service to access O'Hare Airport.

(2) Franklin Park: Transfers with Metra Milwaukee District West Line (MDW)
This potential station would provide at-grade transfers between the IHB and the MDW. This location is east of the Franklin Park Village Hall, Public Library, and the existing MDW Franklin Park Station. The area primarily consists of a mix of light industrial and residential uses.

(3) Melrose Park: North Avenue
The area around this potential station site, on the west side of Melrose Park, is primarily industrial. North Avenue, a major east-west arterial has been declared by CATS as a Strategic Regional Arterial (SRA). Lake Street, south of the potential station location, is the main activity center for commercial and retail activity.

(4) Bellwood: Transfers with Metra Union Pacific (UP) West Line
The intersection between the existing UP West Line and the IHB is grade-separated, so a bi-level transfer station would be required. To the west of this location is the UP's Proviso Yard. It is approximately two miles long and is one of the main freight yards in the study area and the Chicagoland area. The area surrounding Proviso Yard is primarily industrial. The Lake Street commercial and retail center is located north of the potential station location, and to the south there are residential land uses. The Village supports redevelopment of this area as a commuter rail station site.

(5) Broadview: Cermak Road
This potential station site is on Cermak Road where there is a mix of commercial and retail stores. The location is in Broadview, but is also close to Westchester. There are single-family residential areas nearby in both municipalities, but light industry in the immediate vicinity; to the south is a forest preserve.

(6) La Grange Park: 31st Street
This potential station site is located at 31st Street and the IHB at-grade railroad crossing situated along the LaGrange Park's retail business and commercial district. It is also within walking distance of the Village's light industrial district. A potential station could be sited along the IHB right-of-way directly north of 31st Street on the west side of the tracks on a vacant parcel. Other vacant parcels within this general vicinity can be explored for the development of off-street parking.

(7) LaGrange: Transfers with Metra Burlington Northern Santa Fe Line (BNSF)
The intersection between the existing BNSF Line and the IHB is grade-separated, so a bi-level transfer station would be required. Roadway access to this site would be convenient due to the close proximity of LaGrange Road (US 12/45) and Ogden Avenue (US 34). The area immediately northeast of the potential station is zoned as light industrial along a block-wide stretch on both the east and west sides of the IHB. This potential station site is located just northeast of the Village of LaGrange Central Business District (CBD).

(8) Brookfield: Relocated Congress Park BNSF Station (Alternative to #7)
This potential station site would use a relocated Congress Park Station as a transfer point to the BNSF. Although the existing Congress Park Station is located about 2,000 feet east of the IHB, there is sufficient land available to relocate this station to the west and consolidate it with a transfer station on the IHB. The immediate area around this site is light industrial, with single-family homes surrounding the industrial areas.

(9) Summit: Transfers with Metra Heritage Corridor (HC)
This potential transfer station site is in Summit, where the IHB intersects at-grade with the existing HC just east of the Sanitary and Ship Canal Bridge. However, preliminary plans for the new route call for a grade separation of the two lines, so a bi-level transfer station would be required. The immediate surrounding area is industrial in nature and a railroad interchange point (Argo Yard). The Summit CBD is situated along Archer Avenue, just to the east of the yard. Single-family residential housing is located both to the north and south of the CBD.

(10) Summit/Chicago: Harlem Avenue
The area around the intersection of the IHB Stockyard Branch and Narragansett Avenue was inspected as the first choice for a potential site, but it was discovered that the IHB had sold the right-of-way and single-family residential homes are being constructed there. For this reason, a potential station site at Harlem Avenue has been identified. Harlem Avenue (IL 43) is a major arterial, with current Pace bus service. The area is a mix of commercial and retail shopping establishments. Harlem Avenue is the border between Summit on the west and Chicago on the east.

(11) Chicago: Midway Airport Terminal Station
This potential site for the Midway Airport Terminal Station lies just north of 55th Street and just west of Cicero Avenue. The BRC 59th Street Branch forms the northern border of a City of Chicago Midway Airport Remote Parking Lot. A potential terminal station could be located along this lot and utilize the existing free shuttle bus to the airport terminal building. The area around the station is comprised of warehouses, motels, and other airport-support functions.

2.4.2 Option 2: MDW-BRC Alignment

(1) Rosemont/Chicago: Existing O'Hare Transfer Station on Metra North Central Service (NCS)
Please refer to the description provided in Option 1.

(12) River Grove: Existing River Grove Station on Metra Milwaukee District West Line (MDW)
This is an existing station that currently is used as a transfer station between the MDW and NCS. It could be similarly utilized for this potential alignment of the ICS. Two cemeteries, St. Joseph's and Elmwood, are located to the north and east of the station location.

(13) Chicago: Existing Cragin Station on Metra Milwaukee District West Line (MDW)
The potential transfer of commuters between the MDW and the ICS could also be performed at the existing Cragin Station. This station would function similar to the River Grove Station, as well as provide additional commuter service options to the adjacent community. There is a strip of land bordering the BRC corridor that is largely industrial; beyond are medium-density residential land uses.

(14) Chicago: Transfers with Metra Union Pacific (UP) West Line
The intersection between the existing UP West Line and the BRC alignment is grade-separated, so a bi-level transfer station would be required. The land use and zoning are similar to the Cragin area, with a corridor of residential housing outside an industrial strip. The Brach's Candy factory adjacent to the right-of-way could be an important employment destination.

(15) Chicago: Transfers with CTA Blue Line (Forest Park Branch)
The two distinct modes are grade-separated; the BRC alignment runs above the Forest Park Branch of the CTA Blue Line, which operates in the median of the Eisenhower Expressway. A transfer point where the BRC crosses above the CTA might be physically feasible in the median of the Eisenhower Expressway.

(16) Cicero/Chicago: Transfers with Metra Burlington Northern Santa Fe Line (BNSF)
The two routes are grade-separated at this location, so a bi-level transfer station would be required. The potential station site is two blocks east of the Cicero Town Hall and south of Cermak Road. Substantial investments have been made in this vicinity over the course of the last ten years. The corridor along Cermak Road has been renovated, with a mix of retail and commercial shopping. Hawthorne Square, a sizable shopping center, is located at Cermak and Cicero, north of the site. The area along Cicero Avenue, west of the potential station location, is occupied by heavy industry. To the west is an active BNSF intermodal facility, where cross-town freight is moved between rail terminals by truck. Just south of the potential station location is the intersection of Ogden Avenue and 26th Street. Improvements at this intersection have been designed under an Illinois Department of Transportation (IDOT) project. Additional improvements would be required in order to locate a station at this site as a result of increased vehicular traffic.

(17) Chicago: Transfers with Metra Heritage Corridor (HC)
This potential transfer station site is in Chicago, where the BRC intersects at-grade with the existing HC very near the parallel Stevenson Expressway. However, preliminary plans for the new route call for a grade separation of the two lines, so a bi-level transfer station would be required. The area around this potential station site is primarily heavy industry, especially to the north of the Stevenson Expressway. There are also abandoned factories, as well as a metal scrapping plant which is still in operation.

(11) Chicago: Midway Airport Terminal Station
Please refer to the description provided in Option 1.

2.4.3 Option 3 : WCL-CSX-BRC Alignment

(1) Rosemont/Chicago: Existing O'Hare Transfer Station on Metra North Central Service (NCS)
Please refer to the description provided in Option 1.

(2) Franklin Park: Transfers with Metra Milwaukee District West Line (MDW)
Please refer to the description provided in Option 1.

(18) Melrose Park: Maywood Park
This potential station site would be located south of North Avenue and west of 1st Avenue, essentially in the Maywood Park parking lot. The site is not only adjacent to two major arterials (North and 1st Avenues), but is also near several major traffic generators. Those include Maywood Park Race Track, Gottleib Hospital, Triton College, and Kiddieland. In addition, North Avenue is a major commercial street.

(19) River Forest: Transfers with Metra Union Pacific (UP) West Line
This potential transfer station site is located where the WCL alignment intersects with the existing UP West Line just south of the River Forest Village Hall. The two alignments are grade-separated, so a bi-level transfer station would be required. The area west of the potential transfer station is zoned as public, recreational, and institutional space (it is a park). The zoning is central commercial east of the potential station site. Outside of the primary corridor, the area is zoned as single-family residential.

(20) Oak Park/Forest Park: Harlem Avenue
Harlem Avenue is the western border of Oak Park, dividing it from River Forest and Forest Park. The CSX alignment at this point is south of and parallel to the Eisenhower Expressway and the CTA Blue Line (Forest Park Branch) rights-of-way. The land surrounding this area is zoned residential. The Village CBD is several blocks north of the potential station location. To the south is a seven-acre undeveloped parcel that was designated a TIF district in 1993.

(21) Oak Park/Chicago: Austin Boulevard
Austin Boulevard is the border between Oak Park and the City of Chicago. The CSX alignment at this point is in the same situation as above at Harlem Avenue. Columbus Park is located northeast of the potential station site; single-family residences are located to the west.

(16) Cicero/Chicago: Transfers with Metra Burlington Northern Santa Fe Line (BNSF)
Please refer to the description provided in Option 2.

(17) Chicago: Transfers with Metra Heritage Corridor (HC)
Please refer to the description provided in Option 2.

(11) Chicago: Midway Airport Terminal Station
Please refer to the description provided in Option 1.

2.4.4 Option 4 : IHB-CCP-BRC Alignment

(1) Rosemont/Chicago: Existing O'Hare Transfer Station on Metra North Central Service (NCS)
Please refer to the description provided in Option 1.

(2) Franklin Park: Transfers with Metra Milwaukee District West Line (MDW)
Please refer to the description provided in Option 1.

(3) Melrose Park: North Avenue
Please refer to the description provided in Option 1.

(4) Bellwood: Transfers with Metra Union Pacific (UP) West Line
Please refer to the description provided in Option 1.

(22) Broadview: 17th Avenue
This potential station location would be on the east side of 17th Avenue, where there is a mix of commercial and retail activity. The potential site is one mile east of the Broadview Municipal Building on 25th Avenue.

(23) Hines (unincorporated): 1st Avenue
This potential station site is located north of Cermak Road in an unincorporated area, which includes a National Guard Armory and two hospitals (Hines Veterans Administration and Loyola University Hospital).

(24) Berwyn/Riverside: Harlem Avenue
This potential station site is located in an area of single-family homes in Berwyn (east of Harlem) and Riverside (west of Harlem). Harlem Avenue is in active retail/commercial arterial street. To the north of the potential station site is Morton West High School, and to the northwest is North Riverside Mall.

(25) Berwyn: Oak Park Avenue (Alternative to #24)
This potential station site is in a residential area of primarily single-family brick bungalows. Berwyn municipal buildings and Janura Park lie to the east of Oak Park Avenue. McNeal Hospital is three blocks to the south.

(26) Berwyn: Transfers with Metra Burlington Northern Santa Fe Line (BNSF)
This potential station is located at the junction with the existing BNSF at Ridgeland Avenue and 30th Street. The two alignments are grade-separated, so a bi-level transfer station would be required. The existing BNSF LaVergne Station would be connected by a walkway to the CCP. The area southwest of the potential station location is zoned residential. To the east of the station site is Cicero Yard, which is a major BNSF intermodal facility.

(27) Cicero: Sportsman's Park
This potential station site is at the northwest corner of Sportsman's Park Race Track on Cicero Avenue. The zoning to the north and west of the potential station location is residential. The Chicago city limits are just east of the site.

(17) Chicago: Transfers with Metra Heritage Corridor (HC)
Please refer to the description provided in Option 2.

(11) Chicago: Midway Airport Terminal Station
Please refer to the description provided in Option 1.

2.5 ENVIRONMENTAL ISSUES

Should federal funding be utilized to implement any of the alternatives described in this report, some form of review of the project's impacts on the environment would be required. Although any form of comprehensive environmental analysis is beyond the scope of this Feasibility Study, included in this section is a brief review of the areas which would require investigation in later stages of project development. This review is based on experience with the implementation of the North Central Service and on other Metra projects. No comprehensive field investigations have been performed for this Study.

2.5.1 Land Acquisition and Displacements

The potential commuter rail service would likely require an additional track within the existing rail corridors at some locations. Metra presumably would have to acquire right-of-way to accommodate this expansion. Potential new park-and-ride stations would most likely require property acquisition for station parking and access, but

would be the responsibility of the local communities. The existing rail corridors through the west side of Chicago and western Cook County traverse residential neighborhoods, commercial and industrial areas, and forest preserves. Potential acquisitions and possible displacements will need to be evaluated on an individual basis, with concurrence from local communities, in order to identify any potential impacts and associated mitigation measures.

2.5.2 Land Use and Zoning

The potential commuter rail service is to be within existing railroad corridors currently used for freight operations. Therefore, a change in land use or zoning will probably not be required along the potential rights-of-way. However, the location of potential stations and parking facilities in some communities may require zoning changes or variances.

2.5.3 Air Quality

The most commonly referenced environmental benefit in connection with a major transit investment project, particularly a rail project, is the ability to improve the urban air quality. This refers to reductions in mobile emissions from automobiles, including carbon monoxide, nitrogen oxides, and non-reactive hydrocarbons. Improvement in air quality comes from lowering the overall number of automobiles on the road and decreasing the number of automobiles at specific locations. This is done by attracting new ridership (particularly single-occupant vehicles) to use public transit, paying specific attention to pinch points (e.g., bridges or other areas that tend to easily become congested). The provision of commuter rail service should reduce automobile use and vehicle miles traveled (VMT). This has a positive effect on regional air quality and contributes to the achievement of air quality goals. No significant negative air quality impacts would be expected as a result of starting the ICS.

2.5.4 Noise

Urban mass transportation projects have the potential to create three kinds of noise impacts:

- noise associated with the fixed transit facilities
- noise from diverted traffic due to implementation of the transit improvement
- transit-vehicle operating noise

At present, there are no standards to regulate a community's exposure to noise emanating from buses or other transit vehicles. In the absence of such standards, the significance of noise impacts can be evaluated through a comparison of existing (ambient) noise levels with the noise levels projected to result from a project. Generally speaking, an increase or decrease in noise of 3 dBA (L_{eq}) or less caused by a project is considered to represent no significant change. An increase of 10 dBA (L_{eq}) or more is considered a significant impact, whose severity depends on the nearness of noise-sensitive land uses such as schools and hospitals. If the increase in noise ranges between 3 and 10 dBA, its significance will depend upon the existing ambient level and the presence of noise-sensitive sites. An increase in noise of 5 dBA due to a project is often used as the point at which the noise impact is considered significant.

Freight trains currently use the rail corridors included in this Study. Passenger trains are not expected to increase the noise levels above the current ambient level. However, the frequency of trains will increase with additional passenger trains. Certain locations along these alignments are single-family residential areas, and may be sensitive to any increase in noise level or frequency. The identification of specific noise-sensitive sites should therefore be included in the Phase II Study.

2.5.5 Water Quality

The potential impacts on water quality that should be evaluated include the following:

- the direct and indirect introduction of pollutants into surface bodies of water
- the alteration of surface drainage patterns
- the involvement of the potential project with the water table, either through dewatering or contamination of subsurface waters (e.g., aquifer recharge areas)

The existing rail corridors cross several rivers, described in the Floodplain section which follows. Construction of track would be adjacent to existing track and should not alter existing drainage patterns. The project would not affect the water table through dewatering or contamination of subsurface waters. Contaminants inherent to railroad operations are currently present from freight trains, so no new types of contaminants would be introduced (although there would be a small increase in the amount of some types).

2.5.6 Floodplains

The two types of impacts in this category that must be considered are flooding of the potential project site and flooding induced by the potential project. A detailed analysis is not required if the potential project is not located within a floodplain and does not involve changes in the existing pattern of water runoff. If the potential project is located within a floodplain, a detailed analysis must be conducted in accordance with the U.S. Department of Transportation's Order "Floodplain Management and Protection" (42 FR 27148, promulgated on April 23, 1979).

The FEMA FIRM maps for each community were examined; the floodplain locations are shown in Appendix C. The communities of Oak Park, Berwyn and Cicero do not participate in the FEMA program and no FIRM maps have been prepared.

The potential alignments are in a floodplain at each crossing of the Des Plaines River, Salt Creek, Addison Creek and the Sanitary and Ship Canal. The IHB tracks are on an embankment adjacent to a floodplain on the west side from north of North Avenue in Melrose Park to south of the junction with the CCP tracks in Broadview. On the east side, a floodplain extends from the UP tracks in Bellwood to the CCP.

Construction of bridges and/or embankments in floodplains could have a significant impact that would require mitigation measures. Mitigation, if necessary, commonly includes the provision of compensatory floodway storage volume and possible stormwater detention with restricted release. Individual sites would require detailed investigation and should be addressed during the next phase.

2.5.7 Wetlands

A detailed analysis is required if the potential project is located in or near a wetland. This analysis should follow the procedures outlined in the U.S. Department of Transportation Order 5660.1A, "Preservation of the Nation's Wetlands" (promulgated on August 24, 1978). The National Wetlands Inventory maps published by the U.S. Department of the Interior were examined and show wetlands at each river and canal crossing listed in the Floodplain section of this report. In addition, the IHB is adjacent to wetlands at Addison Creek between Madison Street and St. Charles Road. Portions of these maps have been included in Appendix C.

Construction of bridges and/or embankments within a wetland could have a significant impact that may require mitigation measures. Individual sites would require detailed investigation in the next phase of this project. Mitigation usually requires wetlands replacement.

2.5.8 Navigable Waterways

The only navigable waterway to be crossed is the Sanitary and Ship Canal. Navigation clearances and other requirements are well established by the numerous existing bridges over this waterway. Any potential bridge construction would be designed to meet current navigational requirements, thus not affecting navigation.

2.5.9 Ecologically Sensitive Areas

Ecologically sensitive areas contain natural features that require protection. Such areas include woodlands, prairies, marshes, bogs, lakes, streams, scenic areas, landforms and geological formations, and pristine natural areas. The Illinois Department of Conservation should be contacted to search their database for significant natural features during the next phase of this project.

2.5.10 Endangered Species

If it is concluded that the existence or habitat of any endangered or threatened species could be affected by the institution of passenger rail service, a more detailed analysis should be performed. The Endangered Species Act of 1973 (Public Law 93-205), 16 U.S.C. 1531, requires that all federal agencies shall, in consultation with the United States Department of the Interior, Fish and Wildlife Service (FWA) and Commerce (NMFS), carry out programs for the conservation of endangered or threatened species listed by the Department of the Interior. All federal agencies are also required to ensure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of the endangered species or result in the destruction or modification of the habitat of such species to an extent determined by the Secretary (of the Department of the Interior or the Department of Commerce) to be critical. The United States Department of the Interior, Fish and Wildlife Service should be contacted to determine if any threatened or endangered species have been reported in the area during the next Study phase.

2.5.11 Traffic and Parking

This project would promote the use of mass transit which would likely reduce use of automobiles, at least to some degree. This benefits regional air quality, energy use and other topics discussed herein, by reducing VMT. The

development of stations with parking lots might increase traffic congestion in the local area of the parking lots. Each site must be studied in detail to minimize the impact to the surrounding community; such studies will be performed with their full participation.

2.5.12 Energy Requirements and Potential Conservation

This project will encourage drivers to take the train, which is a more energy-efficient mode of transportation. Adequate parking facilities at each potential station site would likely reduce miles traveled by drivers either looking for a parking space to use the train or driving the entire distance to their work place. These measures will increase energy conservation.

2.5.13 Historic Properties and Parklands

Section 106 of the National Historic Preservation Act requires that federal agencies with direct or indirect jurisdiction over a federal, federally assisted, or federally licensed undertaking afford the Advisory Council on Historic Preservation (created by the Act) a reasonable opportunity to comment on undertakings that affect properties included in or eligible for inclusion in the National Register of Historic Places prior to the agency's approval of any such undertaking.

Section 4(f) of the Department of Transportation Act of 1966 declares that it is national policy to make a special effort to preserve the natural beauty of the countryside, public parks and recreation lands, wildlife and waterfowl refuges, and historic sites. The Illinois Department of Conservation, Illinois Historic Preservation Agency, the U.S. Department of the Interior and National Park Services should be contacted to search their databases. Although the alignments traverse the Cook County Forest Preserve in several locations, no additional property taking is anticipated through these areas. Potential stations can be sited to avoid 4(f) properties.

2.5.14 Construction

The design and construction of track, bridges, stations and parking lots would provide numerous job opportunities over several years which lead to community growth and development. The actual construction would be performed in accordance with all applicable building codes and regulations. Issues to be addressed during construction and provided with mitigation measures as part of future project development include noise, disruption of businesses and utilities, disposal of debris and spoil, water quality and runoff, access and distribution of traffic, air quality and dust control, and safety and security.

3.0 FUTURE PLANS

Examination of future plans, with development and growth projections, is intended to provide an important profile of the communities located throughout each potential rail service corridor. Community profiles include residential, commercial, industrial, and other land-use activity which could have a direct or indirect impact from or upon potential commuter rail service. Other factors such as demographic and socioeconomic trends play a key role for communities in guiding various land uses. Regional economic factors might also drive both current and future land-use decisions made by either municipal or private concerns.

This section builds upon the previous section that described existing conditions in the study area, which was a collaborative effort that documented input from a variety of sources. Information on the municipalities in the study area was obtained from the Northeastern Illinois Planning Commission (NIPC) for population and household forecasts, from the 1990 U.S. Census for employment and other socioeconomic factors, and most importantly from the municipalities themselves, both by letter and individual meetings with community leaders. The level of information provided from the municipalities varied, but at a minimum their opinion toward the potential implementation of new ICS rail service in their community was obtained. A total of 30 municipalities responded to this outreach effort in some fashion.

The future operating and capital plans from the affected freight railroads in the study area were obtained through a solicitation in letter form and follow-up discussions with appropriate operations and planning personnel from the railroads. Input to the Study was received from the Indiana Harbor Belt Railroad Company (IHB), Wisconsin Central Limited (WCL), Belt Railway Company of Chicago (BRC), CSX Transportation (CSX), and Chicago Central and Pacific Railroad Company (CCP), as well as Metra. As noted earlier, the cooperation of these railroads in providing information does not necessarily indicate, and is not meant to imply, support for or endorsement of a potential Inner Circumferential Service.

The railroads generally projected increases in freight train traffic in the near future, consistent with the fairly recent resurgence of the railroad industry. They indicated that specific long-term levels of freight traffic are difficult or impossible to predict at this time, but it appears in many cases that they will need to retain most of their existing trackage and other infrastructure to conduct their future business. This situation could require Metra to create its own parallel infrastructure in order to implement any potential ICS operations.

Other agencies were also canvased to assess the impact of any other proposed projects on the study area. These agencies included the Chicago Department of Transportation (CDOT), Chicago Department of Aviation, Illinois Department of Transportation (IDOT), Chicago Area Transportation Study (CATS), Regional Transportation Authority (RTA), Chicago Transit Authority (CTA), Pace, Cook County and the West Central and North Central Councils of Mayors.

3.1 DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS

The following discussion and accompanying tables portray the demographic and socioeconomic characteristics of the municipalities and Chicago Community Areas (CCAs) in the study corridors. The data have been taken from the U.S. Census Bureau's 1990 Census, along with the NIPC preliminary 2020 population and household forecasts. It should be noted that the 2020 forecast projections were preliminary; the final set of NIPC forecasts were not available when this portion of the Study was prepared.

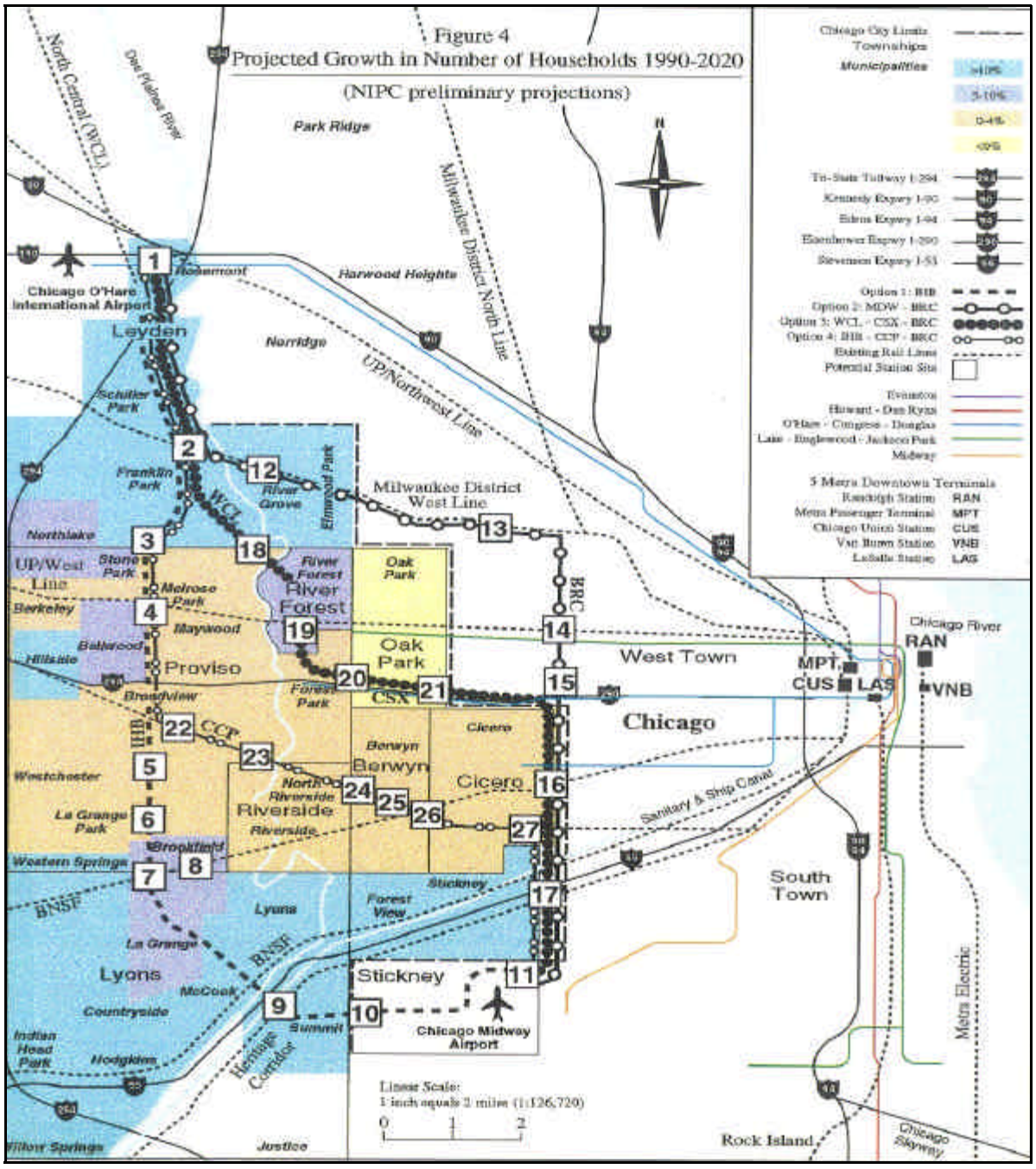


Figure 4
Projected Growth in Number of Households 1990-2020
(NIPC preliminary projections)
Chicago City Limits
Townships
Municipalities
Tri-State Tollway I-294
Kennedy Expwy I-90
Dan Ryan Expwy I-94
Eisenhower Expwy I-290
Stevenson Expwy I-55
Option 1: BIB
Option 2: MDW - BRC
Option 3: WCL - CSX - BRC
Option 4: BIB - CCP - BRC
Existing Rail Lines
Potential Station Site
Evanston
Howard - Dan Ryan
O'Hare - Congress - Douglas
Lake - Englewood - Jackson Park
Midway
5 Metra Downtown Terminals
Randolph Station RAN
Metra Passenger Terminal MPT
Chicago Union Station CUS
Van Buren Station VNB
LaSalle Station LAS
North Central (WCL)
Des Plaines River
Park Ridge
Milwaukee District North Line
Harwood Heights
Norridge
UP/Northwest Line
Chicago O'Hare International Airport
Leyden
Schiller Park
Franklin Park
River Grove
Elmwood Park
Milwaukee District West Line
Northlake
Stone Park
Melrose Park
Maywood
Bellwood
Hillside
Proviso
Broadview
Forest Park
River Forest
Oak Park
UP/West Line
Berkeley
Westchester
La Grange Park
Brookfield
Western Springs
Lyons
La Grange
McCook
Countryside
Indian Head Park
Hodgkins
Willow Springs
Justice
Summit
Heritage Corridor
BNSF
WCL
BRC
CSX
CCP
BIB
North Riverside
Riverside
Berwyn
Cicero
Stickney
Forest View
Chicago Midway Airport
West Town
Chicago
South Town
Chicago River
RAN
MPT
CUS
LAS
VNB
Sanitary & Ship Canal
Metra Electric
Rock Island
Chicago Skyway
Linear Scale:
1 inch equals 2 miles (1:126,720)
0 1 2
N

The map in Figure 4 portrays each of the alignment options and potential station locations. The map is overlaid with color shadings that represent the projected growth in the number of households from 1990 Census numbers to the 2020 NIPC projections. Metra has found from previous trends that their ridership correlates more directly to the number of households in a community rather than actual population. As the map shows, the number of households in nearly all of the municipalities in the study area are projected to increase. There is only one municipality where a decrease in the number of households has been projected (a very slight decrease of -0.2%). According to the 2020 NIPC preliminary findings, the number of households in the City of Chicago are projected to increase by nearly 12%. While the number of households for the CCAs in the study area for 1990 are known, the 2020 NIPC projected forecast increase for the City of Chicago has not been divided into CCAs, and therefore these areas cannot be shaded.

The color shadings for Figure 4 are as follows: Municipalities that are projected to lose households are shaded yellow. The municipalities that are projected to grow slightly, between 0 and 4%, are shaded orange. Those municipalities that are projected to grow at a 5% to 10% rate between 1990 and 2020 are shaded purple, while blue shading depicts the fastest-growing areas, with a growth rate greater than 10%.

Each alignment option travels through areas where household growth varies among communities. The inception of commuter rail service could stimulate a variety of development opportunities. At the regional level, the ICS alignment options would provide improved accessibility to public transportation through the interconnectivity of Metra lines. This could make the existing Chicago transportation network a more effective and efficient "network". This end product is consistent with many municipal master plans that seek to provide transportation alternatives to improve access to employment centers and other major attractions.
The increase or decrease in population also can play a role in the "vitality" of a municipality. According to the NIPC population projections between 1990 and 2020, some municipalities along the four ICS alignment options are anticipated to lose population, while others are expected to gain population. Municipalities often experience negative economic impacts during periods of population decline or economic change. The presence of a commuter rail station might reduce the effects brought on by economic decay, and increase the potential for future economic development.

Growing areas could utilize a station as the epicenter of economic expansion, and pursue transit-oriented development (TOD) that is compatible with the surrounding land use. The Federal Transit Administration (FTA) is a proponent of TOD, which can be one of the tools used to allow for managed growth while containing urban sprawl. Positive impacts that a commuter rail station might provide could include creation of new forms of suburban development, enhancement of commercial districts as the existing infrastructure presents attractive investment opportunities, and revitalization of lower-income urban communities.

3.1.1 Population and Number of Households

The 1990 population within the six counties of northeastern Illinois was 7.3 million. This number includes 5.1 million for Cook County, 2.8 million for the City of Chicago, and just under 0.8 million for the townships and CCAs in the study area. According to the preliminary NIPC 2020 forecast, the population of the municipalities in the study area will increase by 2.3% as shown in Table 2. The preliminary NIPC 2020 forecast for the City of Chicago is also provided (not divided into CCAs); the population for the City of Chicago is projected to increase by 5.6% overall.

According to the U.S. Census, a household is defined as an occupied housing unit. A household could contain a single family, one person living alone, two or more families living together, or any other group of related or unrelated persons who share housing arrangements. The number of 1990 households in northeastern Illinois was 2.6 million. This number includes 1.9 million for Cook County, 1 million for the City of Chicago, and just under 0.3 million for the townships and CCAs in the study area. According to preliminary NIPC 2020 forecasts, households in the study-area municipalities will increase by 8.4%. The number of households in the City of Chicago overall, according to the NIPC preliminary 2020 forecast, is anticipated to increase by 11.7%.

Table 2 provides detailed information with 1990 population and household figures and forecasts of 2020 population and households for each municipality in the study area. Note that while population is forecast to decline in some communities, the number of households are projected to increase in all but one of the communities. Although further investigation is reserved for a potential Phase II Study, Metra can state from previous experience that household data, as opposed to raw population data, correlates more directly with ridership. Consequently, forecasts of future ridership will utilize 2020 household projections. City of Chicago downtown employment remains the largest generator of system ridership, accounting for more than 90% of all Metra destination trips.

3.1.2 Labor Force and Median Household Income

Table 3 provides breakdowns, by township and CCA, for 1990 employment and median household income. Labor force information is taken from the 1990 Census, usually broken down into four categories: 1) Managerial/Professional, 2) Technical, Sales and Administrative Support, 3) Operators/Laborers (includes machine operators/assembly, transportation/material moving, hand/laborer), and 4) Service/Other (includes private household, protective services, other services, farming, forestry and fishing, and precision, production, craft and reproduction).

The 1990 Census shows that there were 336,787 individuals employed out of 363,028 in the 1990 civilian labor force, yielding an unemployment rate of 7% for the 33 municipalities and seven CCAs in the study area. This unemployment rate is between that of both Cook County (8%), and the entire Northeastern Illinois region (6.8%). An employment summary for municipalities directly affected by each alignment option is found in Appendix B.

3.2 MUNICIPAL DEVELOPMENT PLANS

The municipalities have provided future development plans which can be utilized in evaluating potential trends that could impact commuter rail service. Future development plans are critical in determining the potential for land uses, and such development opportunities could create the desired elements needed to support and/or react to the potential inception of commuter rail service.

Creative community-development financing mechanisms are available throughout Illinois. One such mechanism, Tax Increment Financing (TIF), provides Illinois municipalities with an economic development tool to promote redevelopment of blighted areas. Municipalities might choose to fund infrastructure improvements through the issuance of bonds, with future sales tax revenue used as a speculative tool to be calculated in repayment of bonded debt.

Table 2
1990-2020 Population and Households
for Study-Area Municipalities

TOWNSHIP Municipality	Total 1990 Population	Preliminary 2020 Forecast	% Change 1990 - 2020	Total 1990 Households	Preliminary 2020 Forecast	% Change 1990 - 2020
LEYDEN						
Rosemont	3,995	6,098	52.6%	1,761	2,658	50.9%
Schiller Park	11,189	15,930	42.4%	4,139	6,352	53.5%
Franklin Park	18,485	19,939	7.9%	6,590	7,400	12.3%
Elmwood Park	23,206	24,119	3.9%	9,386	10,361	10.4%
Northlake	12,505	13,140	5.1%	4,246	4,629	9.0%
River Grove	9,961	10,699	7.4%	4,295	4,769	11.0%
RIVER FOREST						
River Forest	11,669	12,091	3.6%	4,067	4,380	7.7%
PROVISO						
Stone Park	4,383	4,309	-1.7%	1,261	1,331	5.6%
Melrose Park	20,859	19,587	-6.1%	7,516	7,731	2.9%
Berkeley	5,137	5,013	-2.4%	1,910	1,976	3.5%
Bellwood	20,241	19,761	-2.4%	6,285	6,683	6.3%
Maywood	27,139	25,759	-5.1%	8,145	8,152	0.1%
Hillside	7,672	9,023	17.6%	2,973	3,385	13.9%
Forest Park	14,918	14,684	-1.6%	7,495	7,618	1.6%
Broadview	8,713	8,146	-6.5%	3,345	3,406	1.8%
Westchester	17,301	16,899	-2.3%	6,816	7,108	4.3%
LaGrange Park	12,861	12,674	-1.5%	5,168	5,197	0.6%
Brookfield	18,876	19,199	1.7%	7,488	8,016	7.1%
OAK PARK						
Oak Park	53,648	49,621	-7.5%	22,651	22,606	-0.2%
BERWYN						
Berwyn	45,426	44,925	-1.1%	19,110	20,017	4.7%
RIVERSIDE						
Riverside	8,774	8,415	-4.1%	3,543	3,642	2.8%
North Riverside	6,005	5,896	-1.8%	2,803	2,858	2.0%
CICERO						
Cicero	67,436	65,140	-3.4%	22,915	24,034	4.9%
LYONS						
Western Springs	11,984	13,346	11.4%	4,239	5,004	18.0%
LaGrange	15,362	15,980	4.0%	5,485	5,817	6.1%
Lyons	9,828	11,761	19.7%	3,921	4,921	25.5%
McCook	235	832	254.0%	109	358	228.4%
Countryside	5,716	7,865	37.6%	2,505	3,581	43.0%
Summit	9,971	11,547	15.8%	3,324	4,233	27.3%
Indian Head Park	3,503	4,493	28.3%	1,491	1,849	24.0%
Hodgkins	1,963	2,294	16.9%	811	971	19.7%
STICKNEY						
Stickney	5,678	6,179	8.8%	2,169	2,456	13.2%
Forest View	743	1,298	74.7%	274	580	111.7%
TOTAL for all Municipalities	**495,382**	**506,662**	**2.3%**	**188,236**	**204,079**	**8.4%**

Table 3
1990 Civilian Labor Force and Household Income
for Northeastern Illinois, Cook County, and Study-Area Townships

AREA/COUNTY TOWNSHIP	Total 1990 Population	Total 1990 Civilian Labor Force	Labor Force Breakdown by Category				Total Employed	% Unemployed	Median HH Income
			Managerial/ Professional	Tech/Sales Admin Sup	Operators/ Laborers	Service/ Other			
Northeastern Illinois	7,261,176	3,791,437	1,017,521	1,232,029	498,178	787,709	3,535,437	6.8%	$36,327
			29%	35%	14%	22%	100%		
Cook County	5,105,067	2,626,047	666,776	842,451	359,814	545,923	2,414,964	8.0%	$32,673
			28%	35%	15%	23%	100%		
City of Chicago	2,783,726	1,361,339	300,246	398,444	212,643	295,775	1,207,108	11.3%	$26,301
			25%	33%	18%	25%	100%		
LEYDEN	89,142	48,920	8,855	17,664	8,211	11,828	46,558	4.8%	$34,189
RIVER FOREST	11,669	6,229	3,117	2,054	158	783	6,112	1.9%	$62,469
PROVISO	152,443	81,194	18,178	27,670	13,646	16,882	76,376	5.9%	$36,357
OAK PARK	53,648	32,158	15,404	10,196	1,643	3,798	31,041	3.5%	$40,453
BERWYN	45,426	23,341	5,196	8,569	3,343	4,944	22,052	5.5%	$31,326
RIVERSIDE	15,240	7,968	2,950	2,777	658	1,373	7,758	2.6%	$41,943
CICERO	67,436	31,663	3,706	8,411	7,935	8,780	28,832	8.9%	$27,170
LYONS	105,004	56,819	15,534	18,546	8,218	11,897	54,195	4.6%	$40,844
STICKNEY	37,297	19,076	2,948	6,347	3,596	5,212	18,103	5.1%	$35,977
CHICAGO CCAs*	215,088	99,624	13,323	29,079	20,132	24,982	87,516	12.2%	
TOTAL for Townships and CCAs	**577,305**	**406,992**	**89,211**	**131,313**	**67,540**	**90,479**	**378,543**	**7%**	
			24%	**35%**	**18%**	**24%**			

* These number are for the Chicago Community Areas in the Study Area.
The CCAs are: O'Hare, Belmont Cragin, Humboldt Park, West Garfield Park, Garfield Ridge, Archer Heights and West Elsdon.

Source: U.S. Census Bureau - 1990 Census

Furthermore, private redevelopment costs can be offset by freezing property valuations at a certain level for a designated period. This restricts the amount of property tax revenue derived against the tax base. Anticipation of increased economic activity prompts an increase in revenues generated from local sales/manufacturing tax. Increases in revenue derived from these taxes suggest that this would offset the loss of revenue from frozen property valuations. TIF does not provide a direct fiscal benefit to those taxing authorities who derive revenue solely from the property tax base. Several municipalities have expressed interest in TIF districts as a means to progress current and future development projects.

3.2.1 Leyden Township

Rosemont: The Village supports commuter rail service and currently benefits somewhat from the NCS O'Hare Transfer Station. There are plans for the Village to have its own NCS station further south. Extension of service via ICS is viewed as a factor which would further accentuate current development plans.

Schiller Park: The Village supports commuter rail service, has plans for their own station on the NCS, and views extension of ICS service southward to be advantageous. Development plans include a modest mix of industrial, commercial, retail and residential activity.

Franklin Park: The Village has several development considerations underway. One of these is a potential new station on the NCS, just north of Belmont Avenue. The downtown area is expected to undergo a major facelift with the building facade improvement program. The former Motorola site is a prime location for re-use, and a suitable developer is being sought. Another industrial facility (Binks) could also be closing, with alternative uses potentially desired. The planned Grand Avenue Grade Separation Project at the Wisconsin Central grade crossing is an important project to improve traffic circulation.

Elmwood Park: The Village supports the expansion of commuter rail service. However, certain operating and infrastructure issues continue to be of concern, particularly with respect to minimizing commuter/freight traffic impacts upon automobile traffic at the Grand Avenue grade crossing. Development plans include adaptive re-use of existing properties with concurrent parking expansion opportunities.

Northlake: The City proposed an alternative alignment for consideration in the Study, using the Union Pacific Railroad right-of-way north of Proviso Yard. For the reasons noted earlier in the Existing Conditions section, this alignment was found to serve a limited travel market and was not carried forward for further evaluation. The City continues to be an active participant in the ICS Study effort, and has provided information about its ongoing development efforts. Much of that effort is concentrated between North Avenue and Lake Street, with a focus upon "big box" retail development; additional square-foot build-out is planned for existing retail stores.

River Grove: The Village continues to experience positive growth with sustained limited development. Additional commuter rail service was provided at the existing MDW station from NCS trains stopping there with the inception of the new service. Existing parking facilities are at capacity, but more is planned.

3.2.2 River Forest Township

River Forest: The Village supports the concept of commuter rail service; however, existing physical limitations and residential properties in close proximity to the rail line pose certain impediments to its desirability. The Village is on record as supporting the concept but preferring that the ICS not utilize the WCL-CSX-BRC route.

3.2.3 Proviso Township

Stone Park: The Village is pursuing a number of development options. One such example is a TIF district being considered for development on a five-acre parcel. Although not directly located on any of the study alignment options under consideration, the regional benefits from additional commuter rail service have been acknowledged by the Village.

Melrose Park: The Village's two potential station locations, both along North Avenue, would provide more of a mix of automobile and pedestrian traffic in and around this light industrial/commercial corridor, while serving numerous major attraction centers. The IHB corridor has a substantial employment base.

Berkeley: The Village supports commuter rail service and currently has modest future development plans.

Bellwood: The Village recognizes the regional significance of additional commuter rail service. They have a certain degree of flexibility with their development plans, and will consider a number of options to maximize the attractiveness of the area around the potential station site. The Village is very interested in TOD and would consider providing such resources as the establishment of a TIF district, issuance of industrial revenue bonds, exercise of eminent domain authority or other measures. Bellwood is undergoing new economic development, including the recent construction of a Walgreens in a primarily industrial area.

Maywood: The Village has a number of development projects underway. They plan to create a TIF district to redevelop the 100-acre parcel of property bounded by 1st Avenue on the west, the Eisenhower Expressway on the south, the Des Plaines River on the east, and Madison Street on the north. Plans call for a pedestrian link to the CTA Blue Line (Forest Park Branch), as well as opportunities for commuter parking, although this location is quite a distance from any direct ICS alignment. An 18-acre site on St. Charles Road is also being redeveloped to include 400,000 sq. ft. of industrial space.

Hillside: The Village is located on the CCP west of the IHB route, and therefore beyond the boundaries of the specific study area. Significant community development plans are expected to produce ancillary benefits to potential commuter rail service. Major developments include a nursing facility and an automobile mall located at the former Hillside Mall site.

Forest Park: The Village already enjoys substantial transit options with CTA Blue Line (Forest Park Branch) service terminating at Des Plaines Avenue, and the Metra UP West Line a few blocks to the north in River Forest. Minimizing environmental impacts and reductions in automobile traffic continue to be focal points in the Village, which is on record as supporting the concept but preferring that the ICS not utilize the WCL-CSX-BRC route.

Broadview: The Village's planning and development efforts continue to focus upon striking a balance among industrial, retail, commercial and residential elements. The Village of Broadview considers the IHB-CCP-BRC commuter rail alignment to be most attractive in terms of serving major activity centers and key to maintaining economic vibrancy. Major development goals and plans remain a key focus of the Village's community vision. A number of potential parking facilities (joint-use/sole-use) have been identified.

Hines: A potential ICS station could be located in Hines, an unincorporated area between Broadview and North Riverside, on CCP right-of-way near the intersection of 1st Avenue and Cermak Road. However, lack of community sponsorship could present some difficulty. This area includes a National Guard Armory and two hospitals (Veterans Administration and Loyola University). Employment in 1990 was approximately 5,000, but employment levels have since grown considerably as Loyola's physical plant continues to expand.

Westchester: The Village fully supports the IHB-BRC alignment, as it would serve the area's development efforts well. Development plans include a balanced mix of activity which would facilitate job growth and residential expansion in remaining vacant areas.

LaGrange Park: The Village's Business Initiative Council is presently engaged in the development of a comprehensive strategic plan for the redevelopment of the area in the vicinity of 31st Street and the IHB railroad

crossing. In addition, there are a number of possible commuter parking sites in the vicinity of the potential station location for consideration.

Brookfield: The Village envisions new commuter rail opportunities as central in anchoring its economic development plans. They are willing to consider development options that will upgrade land use in the immediate proximity of the potential commuter rail station, including commuter parking. In addition, the Village has proposed to become a partner with local businesses in order to progress its long-range economic development vision for the area.

3.2.4 Oak Park Township

Oak Park: The Village designated a seven-acre undeveloped property, owned by the CSX Railroad and the Village, as a TIF district in 1993. This piece of property is adjacent to the potential station site at Harlem Avenue, where there would be a confluence of four modes of transportation; the ICS, the CTA Blue Line (Forest Park Branch), four Pace bus routes and the Eisenhower Expressway. This would be a natural location for an intermodal transit-oriented development (TOD) facility containing a transfer station, significant commercial development, and a large parking facility. Oak Park is strongly in favor of such TODs.

3.2.5 Berwyn Township

Berwyn: In original discussions for this report, the City was very supportive of implementing additional commuter rail service. At that time, they identified three potential station site locations at Ridgeland, Oak Park, and Harlem Avenues. However, in preliminary discussions under a separate study of the CCP route as a potential new radial line into DuPage and Kane Counties, the City of Berwyn went on record as preferring that this rail line not become a commuter rail route. It is therefore assumed that they would object to an ICS option utilizing this CCP segment as well. [Note that the sites remain on the maps and station lists, since the objections were recorded late in the process.]

3.2.6 Riverside Township

Riverside: The CCP alignment runs through a small portion of the north end of Riverside. Vacant property about 500 feet west of Harlem Avenue is being considered for locating a new water storage facility.

North Riverside: The Village has concerns regarding the level of rail traffic generated and future impacts upon the environment and automobile traffic. Development plans are modest, but there is substantial employment along the Harlem Avenue corridor. The Village is on record as preferring that the ICS not utilize the IHB-CCP-BRC route.

3.2.7 Cicero Township

Cicero: There is ample property available for the development of a potential ICS commuter rail station and parking facility. The Town of Cicero is interested in pursuing TOD. Significant "big box" retail and commercial development currently exists all along the Cicero Avenue corridor, with a substantial concentration within a half-mile of the potential station site.

3.2.8 Lyons Township

Western Springs: The Village lies outside the IHB-BRC alignment, but supports the concept of new rail service as it could offer residents additional transportation modal choices. BNSF transfer options offer attractive mobility opportunities. There are currently no major development plans within the Village.

LaGrange: The Village fully supports the IHB-BRC option. The general area of the IHB/BNSF intersection (Ogden, Hazel, Shawmut, and Hillgrove Avenues) has substantial underutilized space which they would consider for the development of ICS commuter parking, both at-grade or within a structure. The potential station site is located northeast of the Village's Central Business District (CBD), and could serve transportation needs associated with a rather substantial industrial employment base; it could also serve as an interconnecting transportation link with the BNSF and Pace bus service. The area immediately northeast is zoned as light industrial, along with a block-wide stretch on both sides of the IHB right-of-way.

Lyons: Commuter rail options remain an attractive feature as the Village lies within one or two miles of the HC, CCP and BNSF rail lines. The community currently has a modest development plan with a balanced mix of industrial, commercial and residential growth.

McCook: The Village is supportive of the potential increase in rail service. ElectroMotive is attracting buyers for frontage property on 55th Street.

Countryside: The Village generally supports the ICS concept, but lies outside the rail alignment. Ancillary opportunities could be realized through indirect economic benefits. Potential new rail service is seen as an attractive alternative transportation modal choice.

Summit: The Village is very supportive of the potential commuter rail service. A senior housing facility (near the IHB) and other industrial developments (Mack Truck and Frito Lay) are in the planning stages, with good development potential.

Indian Head Park: The Village generally supports the ICS concept, but lies outside the rail alignment. Ancillary opportunities could be realized through indirect economic benefits. Potential new rail service is seen as an attractive alternative transportation modal choice.

Hodgkins: The Village is supportive of the potential commuter rail service, although they are not directly affected by the IHB-BRC alignment. There are major employment generators in the area and a new 14-18 screen theater is to be constructed.

3.2.9 Stickney Township

Stickney: The Village lies outside the rail alignment but generally supports new rail service within the region. Additional service is seen as an opportunity to offer residents a potentially attractive choice of rail options with numerous existing and potential station locations. The Village is situated between the IHB/BRC rail line to the south (one mile), the BNSF (less than one mile) and the CCP (one half-mile) alignments to the north. There are no major community development plans; however, the Harlem Avenue corridor between Pershing Road and 47th Street is currently undergoing a modest level of redevelopment.

Forest View: The Village supports commuter rail and is in favor of increasing rail service options. The municipality is in close proximity (within 1 to 1½ half miles) to the HC, CCP and BNSF lines. Development plans include limited residential and industrial growth.

3.3 RAILROADS AND OTHER AGENCIES

All railroads have ongoing capital improvement programs to update and maintain their facilities. These annual programs typically include rail and tie replacements; track surfacing, structure rehabilitation or replacement; signal and communications improvements; and essentially maintenance of the railroads in their current form. This Study is concerned only with those changes which could affect any potential commuter rail operation on the railroads in question. In addition, other agencies such as the Illinois and Chicago Departments of Transportation (IDOT and CDOT, respectively), may have projects planned or programmed which might have an effect on the potential ICS.

Perhaps even more important, the various railroads have provided information on current and projected levels of freight traffic, both of which could have an effect on the ability of potential ICS trains to utilize existing infrastructure. If there is insufficient track capacity, for example, Metra trains might not be able to run on the same tracks with freight trains very efficiently. It must be recognized that the primary purpose and responsibility of these freight railroads is their freight traffic. In order to provide the physical plant for commuter rail service, the various railroads would likely require upgrades or additions to infrastructure (tracks, signalization, etc.) generally necessary to permit commuter trains to operate in this environment.

3.3.1 Indiana Harbor Belt (IHB)

The most significant project planned for the IHB Main Line is the Grand Avenue Grade Separation Project. This project will relocate the IHB eastward to the Wisconsin Central alignment, grade-separate both railroads above a new Grand Avenue underpass, and reroute the IHB from the WCL back to the existing main line north of Norpaul Yard. The existing IHB from a point south of Grand Avenue to its junction with the MDW will be abandoned. Consequently, three at-grade street crossings and the winding low-speed WCL-IHB connecting track will be eliminated. No other major changes are anticipated along the IHB Main Line.

South of the crossing with the Illinois Central/Metra Heritage Corridor tracks, the new track would go through the north end of Argo Yard and connect with the IHB's Stockyard Branch. This branch is primarily single-track with a relatively low volume of freight movements. The Stockyard Branch proceeds eastward between 59th and 60th Streets until it joins the BRC on the 59th Street Branch near Nashville Avenue, at which point freight traffic volume increases. The commuter service would then operate beside BRC's double-track branch to the Midway Airport Terminal Station just west of Cicero Avenue. Like the O'Hare Terminal Station, a stub-ended layover track and platform would be built on the south side of the BRC, adjacent to the City Department of Aviation remote parking lot. This lot has free shuttle bus service to the Midway Airport Terminal. Train crew layover facilities would be constructed at both terminal stations.

In 1996, 55 to 70 freight trains (both IHB and others with trackage rights) operated on a daily basis over the Main Line. A 20% increase in train operations is expected to occur, particularly on the north end of the Main Line, over the course of the next several years. Six to eight freight trains operated daily over the Stockyard Branch, but no significant increase in train operations is expected on this route over the next several years.

3.3.2 Wisconsin Central Limited (WCL)

Due to growing freight traffic, and a likely increase in commuter rail service on Metra's NCS, those portions of the WCL Main Line which are now single-track are planned to be double-tracked. This includes a portion of the line between the O'Hare Transfer Station and Tower B-12 in Franklin Park. Much of this double-tracking will take place through the Schiller Park Yard. As part of these future improvements on the NCS, there is the likelihood of adding stations in Schiller Park, Franklin Park, and Rosemont. These new stations have been assured of local sponsorship.

South of Schiller Park Yard, Wisconsin Central freight trains might be routed in any of three directions: via the IHB to Norpaul Yard or beyond, via the MDW to connect with the BRC just west of Cragin at Cicero Interlocking, or on their own tracks to connect with CSX in Forest Park for various destinations beyond. In 1996, there were six to eight daily freight trains operating over WCL's own trackage, with a steady increase in train operations expected over that route in the near future.

3.3.3 Metra Milwaukee District West Line (MDW)

The new, double-track connection with the WCL at Tower B-12 in Franklin Park for the NCS could also be utilized by the ICS on the MDW-BRC route. This project to upgrade the physical plant for NCS service will include capacity improvements on the MDW east of Tower B-12, including upgrading the third main track (currently freight-only) for commuter train use, with subsequent mixing of passenger and freight on all three tracks for expanded capacity and flexibility.

In early 1997, there were 68 weekday commuter trains (including 10 from the NCS) and six freight trains operating daily over this trackage. Metra plans to expand service on the NCS as more double-track right-of-way is added on the WCL, increasing the number of commuter trains on the MDW tracks. Additional MDW trains are also possible, particularly if one of the proposed line extensions west of Elgin is implemented.

3.3.4 Metra Union Pacific (UP) West Line

The Village of Oak Park is a participant in the Oak Park Transportation Center Project. This project, which is currently under construction, includes improvements to the UP West Line Oak Park Station, the CTA Green Line Harlem Station, convenient pedestrian connections via tunnel through the embankment, bus terminal expansion, and relocated roadway revisions. This project will be complete before ICS could begin.

3.3.5 Metra Burlington Northern Santa Fe Line (BNSF)

The Illinois Department of Transportation is planning to reconstruct the entire Cicero Avenue/Ogden Avenue/26th Street Interchange. In coordination with that project, Metra will be relocating the BNSF Cicero Station slightly to the west. This project will include the purchase of additional property, changes in roadway access to the station, and possibly a new depot and additional parking. These plans would preclude using this station as a transfer point with the ICS via the BRC; instead, a separate joint transfer/park-and-ride facility could be considered at the grade-separated junction.

3.3.6 The Belt Railway of Chicago (BRC)

The BRC's capital improvement program is focused on its primary facility at Clearing Yard. Due to increasing container traffic between BNSF's Cicero Yard and BRC's Clearing Yard, some track improvements may take place between 27th and 33rd Streets. Traffic on the remaining Main Line north to Cragin Junction is relatively light, with no changes currently envisioned. Traffic on the 59th Street Branch shows some growth, including the additional IHB trains, but no changes in the study area are anticipated at this time. The new track connection to the IHB Stockyard Branch is in place.

In 1996, approximately 20 freight trains operated daily over the Main Line between Cragin and Hawthorne (31st Street), while 60 freight trains operated daily between Hawthorne and 55th Street. There is expected to be a steady increase in freight traffic over this line in the near future. On the 59th Street Branch, 30 to 40 BRC freight trains operated daily, plus the six to eight trains from the IHB Stockyard Branch. A gradual increase in freight train operations is expected over this line in future years.

3.3.7 CSX Transportation (CSX)

Traffic on the CSX Altenheim Subdivision has been light but steady. No major changes in this segment are currently contemplated. In 1996, 10 to 12 freight trains operated daily over this trackage. There are no planned changes in freight operations over this trackage in the foreseeable future, but possible effects arising from the negotiated division of Conrail between CSX and Norfolk Southern is uncertain at this time.

3.3.8 Chicago Central and Pacific (CCP)

Traffic on this segment of the CCP has been stable, and no significant changes in facilities are foreseen. The two recent changes in ownership (first the purchase of CCP by the Illinois Central and then the purchase of Illinois Central by Canadian National) might produce physical or operational changes in the long term. Metra has recently begun a new study to evaluate the feasibility of operating commuter service on the IC/CCP line from Burlington (Kane Co.) to downtown Chicago.

In 1996, about 10 freight trains operated daily over this trackage. At that time, CCP expected little change in freight train density; future plans at the time called for converting the route to single track and increasing the speed to 50 m.p.h. It is possible that these plans could change under the new CN ownership.

3.3.9 Chicago Department of Transportation (CDOT)

CDOT has two projects in planning which could impact new commuter rail operations in the study area:

3.3.9.1 O'Hare Transportation Center

This project would be a multi-modal transportation center on the northeast side of O'Hare Airport. The center could include a newer and larger commuter rail station to replace the current facility on the NCS, a new terminal station for the O'Hare Airport Transit System (ATS), bus terminal, and auto parking. Since this station would be the northern terminus of the ICS, an improved station would most likely increase utilization. Access to the

airport terminals from the existing O'Hare Transfer Station currently requires riding the shuttle bus to the northern terminus of the ATS, then taking the ATS to the terminals. A new ATS station at the commuter rail station would provide much-improved access to the air terminals.

3.3.9.2 Mid-City Transitway

CDOT is studying this potential new line which would connect with the CTA Blue Line near Jefferson Park, continue south in the BRC corridor, then east to the Dan Ryan Expressway near 87th Street (see Figure 5). The study will look at different technologies, including commuter rail. This project has been included by CATS in the 2020 Transportation Plan for the Chicago Region.

3.3.10 Chicago Department of Aviation

A new terminal building for Midway Airport is currently under design by the DOA. This project will relocate Cicero Avenue to the west (where it once was) and locate the main terminal building and land-side facilities on the east side of Cicero Avenue between 55th and 59th Streets. As part of the ICS Study, Midway Station locations were considered at 59th Street and the BRC Main Line or just north of 55th Street and west of Cicero Avenue on the 59th Street Branch. The former was ruled out because a line capacity problem exists on the Main Line of the BRC. Therefore, whether the ICS route would follow the IHB or the BRC, either one is planned to terminate alongside the 55th Street parking lot.

3.3.11 Illinois Department or Transportation (IDOT)

District One of IDOT maintains a five-year program of highway improvements for the region. Most of these projects are of the on-going maintenance type, such as resurfacing and bridge repair projects. The FY 1997-2001 Program has been reviewed and the following projects which could have significant impact on the study corridor were identified: Mannheim Road bridge widening over the UP Proviso Yard in Melrose Park; Harlem Avenue reconstruction from Division Street to 16th Street; North Avenue culvert replacement over Addison Creek; and St. Charles Road bridge replacement over Addison Creek.

IDOT has also performed a study concerning the introduction of High-Occupancy Vehicle (HOV) Lanes on the Eisenhower Expressway. The study documents indicate the possibility of widening the expressway for the HOV lanes by using some CSX right-of-way through Oak Park. This would also require relocating the CTA Blue Line (Forest Park Branch) tracks and stations in this area. Although the current status of this project is uncertain, it could impact a commuter rail operation on the CSX in this segment.

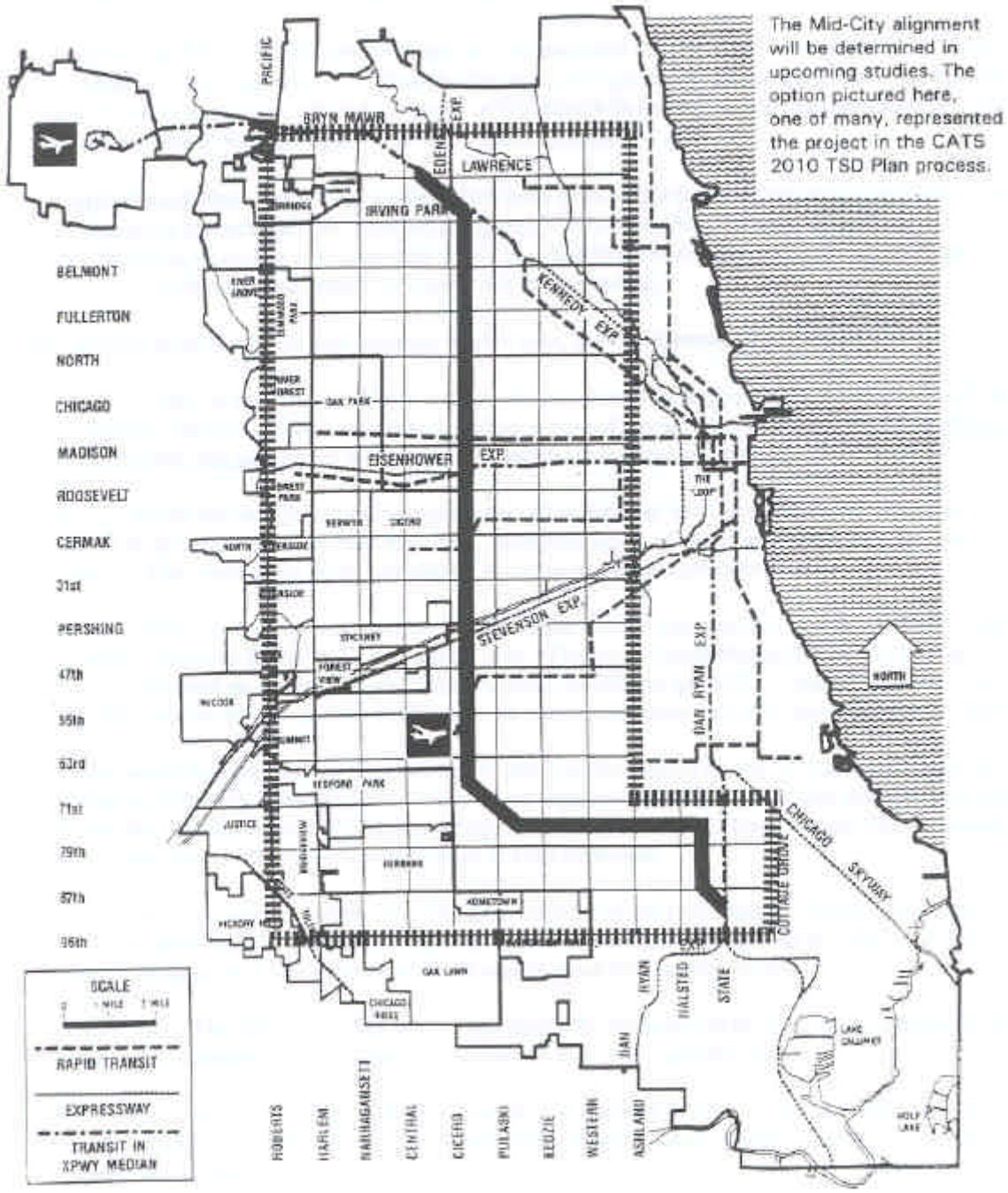
3.3.12 West Central and North Central Councils of Mayors

Both the West Central and North Central Councils have five-year Surface Transportation Program. These projects tend to be smaller in scope and impact. The FY 1998-2002 program has been reviewed and none of these projects appear to have an impact on the potential ICS commuter rail service options.

Figure 5

MID-CITY TRANSITWAY

STUDY CORRIDOR AND "BELT" ALIGNMENT OPTION



4.0 POTENTIAL OPERATIONS

For comparative purposes, the following methodology was utilized in order to develop a reasonably feasible service operation on any one of the four potential alignments.

- **Operating Plans** - Each service operation was assumed to be similar to existing Metra diesel-powered, push-pull operations. Although other types of operations and equipment may be feasible for this service, they are beyond the scope of this Feasibility Study. Each operating plan also has to be compatible with the operations of the host railroads.

- **Capital Facilities** - Once the operating plans were defined, the facilities required to support these operations (e.g., track, bridges, stations, equipment) were identified. In most cases these would be new facilities, while in a few cases they would be rehabilitations of existing facilities. Estimates of the costs for the required capital facilities were then prepared.

The same general level of service was assumed in each case, under the parameters indicated below:

- Service would be operated by Metra with its own forces. Trackage-rights agreements would be negotiated with each affected railroad. The exact nature of any service agreement would be subject to negotiation and agreement between Metra and the respective railroad(s).

- Service would utilize standard Metra commuter rail equipment and operating rules. Initial service would be provided by four new train sets, each consisting of one locomotive and two bi-level coaches. One spare train set would also be included in capital cost estimates.

- All four alignment options would utilize the Wisconsin Central Limited (WCL) line from the O'Hare Transfer Station to Tower B-12 in Franklin Park. The Inner Circumferential Service (ICS) would be superimposed on Metra's North Central Service (NCS) and on WCL's freight operations. It is assumed that the WCL would be double-tracked in this area before any ICS operations could begin.

- Trains would operate between the existing O'Hare Transfer Station on the NCS and a new terminal station near Midway Airport. Both locations are adjacent to remote parking lots with existing free shuttle bus service, either to the Midway Airport Terminal or to the O'Hare Airport Transit System. Train crew layover facilities would be built at both terminals.

- Service was assumed to operate on weekdays from 6 a.m. to 12 midnight. Trains would operate hourly in each direction, except during peak periods. During the three-hour morning and evening peak periods, service would operate on 30-minute headways in each direction.

- Stations would be unmanned; parking lots and station facilities would be maintained and policed by the host communities. All stations would comply with ADA guidelines.

- Train equipment would be stored and maintained at Metra's Western Avenue Yard. This would require deadhead moves over the WCL and MDW from Western Avenue Yard to O'Hare at the beginning and end of each service day.

4.1 OPTION 1: IHB-BRC

Potential ICS operations destined for the IHB-BRC alignment would begin at the O'Hare Transfer Station on the WCL. ICS trains would utilize a separate, stub-ended layover track and platform on the west side of existing tracks to avoid interference with NCS and WCL operations. This station is currently served by an airport shuttle bus which provides a direct connection to the O'Hare Airport Transit System. ICS trains would proceed south on the WCL to Tower B-12 in Franklin Park, where they would cross the MDW at grade. Just south of this crossing, the trains would utilize a new connecting track and new diamonds to cross over the freight mains to the west side of the IHB right-of-way. Assuming the connection is parallel to the existing one, this could be a low-speed operation because of the reverse curve and the nearness of several industrial buildings. Land acquisition for additional right-of-way might be necessary.

Since the IHB Main Line serves a heavy volume of slow-moving freight trains, it was assumed that the ICS operation could not be superimposed on the double-track IHB Main Line. Following that assumption, the original plan was that the commuter service would operate on its own semi-exclusive track, developed by linking the short segments of existing sidings that are utilized (while keeping the switching movements off the Main Line) to access industries on the east side of the IHB Main Line tracks. Metra trains would operate bi-directionally on this track, with separate passing sidings for Metra meets. This track would be used only by commuter trains, except for freight switching moves to industrial tracks on the east side of the IHB that were assumed to be changed to night operation when Metra trains would not run. It would be signaled for 60 m.p.h. bi-directional operation, and would be utilized along this entire portion of the IHB from Franklin Park south to Argo Yard, including the narrow right-of-way through the quarry where the ICS commuter service would be forced to share the double-track freight mains.

However, in subsequent discussions IHB management informed Metra that there was little or no track capacity to accommodate ICS trains either on the Main Line or by connecting the industrial access sidings, and that several of the industries could not be switched at night as the first plan assumed; most of the industries require daytime-only deliveries. The IHB would consider allowing Metra to construct a separate and virtually exclusive track with new passing sidings, bridges, and signaling within their right-of-way (including over the quarry). However, since the majority of the industrial access and connections with intersecting freight lines lie on the east side of the right-of-way, Metra's track would have to be constructed on the west side. The IHB also stated that, should there be insufficient right-of-way on the west side, the new track could be installed on the east side and the IHB freight operation shifted to leave Metra on the west side. In either case, the shifting of the commuter trains to the west side would require additional interlocked diamond crossings at each end of the IHB Main Line route to allow Metra trains to cross the freight tracks, since the links to the WCL and the Stockyard Branch are both on the east side of the IHB Main Line. Diamond crossings would also be necessary to cross any industrial leads and connecting tracks.

Three major crossings with other railroads are already grade-separated at the Union Pacific (UP) West Line, the Chicago, Central & Pacific (CCP), and the Metra Burlington Northern (BNSF) Line. However, new grade-separation structures would be required at the BNSF (ex-Santa Fe) crossing north of the Des Plaines River, the Sanitary & Ship (S&S) Canal and the private railway of the Metropolitan Water Reclamation District (MWRD) on its northern bank, the old Illinois and Michigan (I&M) Canal, and the crossing with the Illinois Central (IC)/Heritage Corridor (HC) tracks at the north end of Argo Yard. In between all of this, the IHB runs under I-55 between the Des Plaines River and the S&S Canal; there appears to be enough room between spans for a third track under I-55.

South of the crossing with the IC/HC tracks, the new track would go through the north end of Argo Yard and again cross the freight mains to connect to the IHB Stockyard Branch. This branch is primarily single-track, with a relatively low volume of freight movements, but standing freight trains or cars are often found on the short portion of double track, and standing cars or trains have also been observed to be parked on the single-track portion nearest to the BRC. Therefore, it has been assumed that Metra would require a separate track parallel to the IHB Branch to avoid freight-related delays. The Stockyard Branch proceeds eastward between 59th and 60th Streets until it joins the BRC 59th Street Branch near Nashville Avenue.

On the BRC Branch, commuter operations could not be shared with the heavier volume of freight traffic. This would produce the same problems identified on the IHB Main Line; in fact, BRC management has already informed Metra that joint operation of commuter and freight trains on the same tracks would not be possible. Instead, Metra would have to provide a third main track along the south side of the two existing freight mains in order to run its trains without freight interference to the new Midway Airport Terminal Station between Cicero and Laramie Avenues. Again similar to the IHB situation, the third main could be constructed on the north side if more right-of-way is available there, shifting the freight operations over to keep Metra trains on the south track. In either case, the shift to the south side would require additional diamond crossings near the junction with the IHB Branch. Finally, a stub-ended layover track and platform would be built on the south side of the BRC Branch, adjacent to the City Department of Aviation (DOA) remote parking lot, in a situation similar to that at the O'Hare Transfer Station.

Eight potential intermediate station sites have been identified. Transfer stations would be provided at four crossings with existing Metra radial commuter rail lines: MDW (Franklin Park), UP West (Bellwood), BNSF (LaGrange or Brookfield), and HC (Summit). Potential park-and-ride stations would be developed at North Avenue (Melrose Park), Cermak Road (Broadview), 31st Street (LaGrange Park), and Harlem Avenue (Summit/Chicago).

4.2 OPTION 2: MDW-BRC

As in the IHB-BRC option, potential operations using this route would begin at the existing O'Hare Transfer Station on the WCL. The ICS would operate between the O'Hare Transfer Station and Tower B-12 under the same conditions as described in Option 1, but under this option the ICS would use the same track connections as the NCS at Tower B-12 to proceed east over the MDW. Since this line will be triple-tracked for commuter operations in this area, there should be minimal, if any, capacity constraints. The ICS would operate on the MDW from Tower B-12 in Franklin Park to a new connection parallel to the freight connection at Cicero Interlocking, utilizing new diamond crossings to get to the opposite side of the BRC right-of-way. For transfers, ICS trains would stop at the existing River Grove and Cragin Stations.

The ICS trains would then proceed south alongside the BRC Main Line toward the new Midway Airport Terminal Station on the BRC 59th Street Branch, along 55th Street west of Cicero Avenue. Although BRC freight traffic is relatively light from Cicero Interlocking to about 31st Street, volume is much heavier south of this point. This is primarily due to heavy freight interchange traffic on the BRC between BNSF's Cicero Yard and BRC's Clearing Yard in Bedford Park. Thus, superimposing ICS operations on the BRC freight operations from 31st Street south would not be operationally feasible, although it was initially assumed that Metra trains could at least share the two freight mains north of 31st Street.

However, in subsequent discussions BRC management informed Metra that there was little or no track capacity to allow this, a similar circumstance to that outlined by IHB management relative to their route. In this case, the BRC would also consider allowing Metra to construct a separate and virtually exclusive track with new passing sidings, bridges, and signaling within their right-of-way. Metra's new ICS track would have to be constructed on the east side of the BRC Main Line, since most of the industrial access and connections with intersecting freight lines lie on the west side. The shift to the east side would require additional diamond crossings at each end of the BRC Main Line route to allow Metra ICS trains to cross the freight mains, since the links to the MDW and the 59th Street Branch are both on the west side of the BRC Main Line. Diamond crossings would also be necessary to cross any industrial leads and connecting tracks.

Two major crossings with other railroads are already grade-separated at the Union Pacific (UP) West Line and the Metra Burlington Northern (BNSF) Line. However, new grade-separation structures would be required at the CCP crossing near 33rd Street, the Sanitary & Ship Canal, the BNSF (ex-Santa Fe) crossing north of the S&S Canal, the IC/HC crossing south of the S&S Canal, and at 47th Street. The close proximity of the former Santa Fe line and the S&S Canal would likely require two bridges and a viaduct or embankment in between to cross both. In between all of this, the BRC runs under I-55 south of the S&S Canal; it is assumed, although not certain, that there would be enough room for a third track under I-55.

This ICS alignment would cross the freight mains of both the BRC Main Line and 59th Street Branch to access the south side of the Branch right-of-way and the Midway Airport Terminal Station. As in Option 1, a separate track would be required to avoid freight interference to ICS trains. In this case, the distance from the connection to the terminal is only a matter of a few blocks. The stub-ended layover track and platform would be built on the south side of the BRC, adjacent to the DOA remote parking lot.

Six potential intermediate station sites have been identified. Transfer stations would be provided at three crossings with existing Metra radial commuter rail lines: UP West (Chicago), BNSF (Cicero/Chicago), and HC (Chicago). A potential transfer station with the CTA Blue Line (Forest Park Branch) in the median of the Eisenhower Expressway might also be possible. Transfers and boardings would also occur at the existing River Grove and Cragin MDW Stations. No potential ICS-only park-and-ride stations were identified.

4.3 OPTION 3: WCL-CSX-BRC

Under this option, potential ICS trains would operate between the O'Hare Transfer Station and Tower B-12 under the same conditions as the others. Metra ICS trains would then cross the MDW at grade and continue south on the WCL towards Forest Park. Since this line is presently only single-track, it is assumed that the former second track would be restored so that the ICS operations could be superimposed on the relatively light WCL freight operations on this line. The WCL line becomes double-track just north of Madison Street in Forest Park; ownership changes from WCL to CSX at Madison Street.

This part of the CSX system, known as the Altenheim Subdivision, is double-track for the full length that would be required for Option 3. Freight traffic is relatively light, and it is completely grade-separated; this scenario would mix freight and commuter trains on existing tracks. ICS trains would travel east through Oak Park adjacent to the CTA Blue Line (Forest Park Branch) and the Eisenhower Expressway to the junction with the BRC. Again utilizing a new connecting track parallel to the existing freight connection, and diamond crossings to reach the opposite side, ICS trains would operate south to Midway Airport. Diamond crossings would also be necessary to cross any industrial leads and connecting tracks.

Seven potential intermediate station sites have been identified. Transfer stations would be provided at four crossings with existing Metra radial commuter rail lines: MDW (Franklin Park), UP West (River Forest), BNSF (Cicero/Chicago), and HC (Chicago). Potential park-and-ride stations would be developed at Maywood Park (Melrose Park), Harlem Avenue (Oak Park/Forest Park), and Austin Boulevard (Oak Park/Chicago).

4.4 OPTION 4: IHB-CCP-BRC

From the O'Hare Transfer Station, potential ICS operations destined for the IHB and the CCP would travel south on the WCL to Tower B-12 in Franklin Park, cross the MDW at grade, and take the new connecting track and diamond crossings to cross the IHB Main Line right-of-way. From that point, Metra ICS trains would operate south under the same scenario as described in Option 1, but only as far as Broadview.

Just south of Roosevelt Road in Broadview, ICS trains would take a new connecting track to the CCP, parallel to the existing freight connection as in the other cases. It was assumed that the ICS commuter and CCP freight operations (the CCP has a moderate volume of trains) could share the double-track line that begins at the point where the IHB connects with the CCP (the CCP becomes a single-track line to the west). The ICS would operate southeastward on the CCP, past Hawthorne Yard, to the junction with the BRC just east of Cicero Avenue at about 33rd Street. Since no connection presently exists, a new connecting track would have to be installed in the southwest quadrant of this junction. After making the new single-track connection from the CCP and crossing the new diamonds to the opposite side of the BRC right-of-way, Metra ICS trains would operate south to Midway Airport as described in Option 2. Diamond crossings would also be necessary to cross any industrial leads and connecting tracks.

Nine potential intermediate station sites have been identified. Transfer stations would be provided at four crossings with existing Metra radial commuter rail lines: MDW (Franklin Park), UP West (Bellwood), BNSF (Berwyn), and HC (Chicago). Potential park-and-ride stations would be developed at North Avenue (Melrose Park), 17th Avenue (Broadview), 1st Avenue (Hines), Harlem Avenue (Berwyn/Riverside) or Oak Park Avenue (Berwyn), and Sportsman's Park (Cicero).

5.0 CAPITAL IMPROVEMENTS

This section describes the capital improvements that would likely be required to create the infrastructure for a feasible commuter rail operation along each of the four alignment options. In order to support the potential operations described in the previous section, new track, bridges, signal systems and at-grade street crossings would be installed (in some cases existing facilities could be rehabilitated or rebuilt), station/parking facilities would be built, new rolling stock would be purchased, and some land acquisition would be necessary, particularly for park-and-ride stations. For all options, four train sets consisting of one diesel locomotive and two bi-level coaches are assumed to be sufficient, with an additional spare train set included.

A list of potential station sites, as suggested by interested communities, was developed in earlier sections of this Study. Further refinement of the sites (a process involving Metra, the respective freight railroads, and local communities) would occur in subsequent phases of the overall Study. Any and all of these station locations could be subject to modification, including significant changes to parameters or even complete relocation. Most of the facilities' specific locations and sizes of parking lots, platform lengths, depot sizes, and other elements would be derived following estimation of travel demand, after which site aspects would be coordinated with each community. Potential locations discussed earlier are listed in Table 4.

The capital facilities are defined to provide a basis for developing order-of-magnitude estimates for the cost of constructing the necessary facilities. Again, keep in mind that the required improvements presented in this section are considered necessary to operate commuter trains efficiently, and are not intended to portray or imply that the current physical plants and infrastructure of the respective railroads are in substandard condition for operating their freight services. The capital cost estimates for each route option are summarized in Table 5. It is quickly evident that providing new facilities and infrastructure (rather than rehabilitated) would create substantially higher costs than might have been initially expected.

5.1 OPTION 1: IHB-BRC

5.1.1 Track Work

- At the existing O'Hare Transfer Station on the WCL, a separate stub-ended layover track would be constructed. This would consist of a turnout and about 1,000 feet of new track.

- A new connecting track for ICS trains would be installed beside the existing WCL/IHB freight connecting track. Diamond crossings would be required to provide access to the opposite (west) side of the IHB right-of-way, and across any existing industrial leads or connecting tracks.

- A new virtually exclusive track, to be used primarily for commuter operations, would be constructed along the west side of the IHB Main Line. New track construction would include grading and ballast, plus fill in the case of track on embankment and retaining walls wherever necessary.

- Two half-mile-long passing sidings would be required along the IHB Main Line to allow for bi-directional operation, i.e., scheduled locations for two commuter trains to pass one another. Exact locations of these sidings would be determined following a computer simulation of operations.

Table 4
Station/Parking Facility Elements for ICS Alignment Options

Map #	Note #	Potential Station Location	Station Class	ICS Segment	Site ** Elevation
1	a.	O'Hare Transfer (NCS Station)	Terminal	NCS	at-grade
2		Milw West (B-12)	Transfer	WCL	at-grade
3		North Ave (west of 25th Ave)	Park-and-Ride	IHB	IHB above
4		UP West Line (west of 25th Ave)	Transfer w/P+R *	IHB	IHB above
5		Cermak Road (west of 25th Ave)	Park-and-Ride	IHB	at-grade
6		31st Street	Park-and-Ride	IHB	at-grade
7		BNSF	Transfer w/P+R *	IHB	IHB below
8	b.	BNSF (Congress Park Station)	Transfer w/P+R *	IHB	IHB below
9		Heritage Corridor (Argo)	Transfer	IHB	IHB above ~
10		Harlem Ave (at 59th Street)	Park-and-Ride	IHB	at-grade
11	c.	Midway (55th St west of Cicero Ave)	Terminal	BRC	at-grade
12	d.	River Grove (Milwaukee West Station)	Transfer w/P+R *	MDW	at-grade
13	e.	Cragin (Milwaukee West Station)	Transfer w/P+R *	MDW	MDW above
14		UP West Line (near Brach's Plant)	Transfer	BRC	BRC above
15	f.	CTA Blue Line (I-290 median)	Transfer	BRC	BRC above
16		BNSF (at 26th Street)	Transfer w/P+R *	BRC	BRC above
17		Heritage Corridor (near I-55)	Transfer	BRC	IHB above ~
18		North Ave (1st Ave/Maywood Park)	Park-and-Ride	WCL	at-grade
19	g.	UP West Line (east of River Forest Station)	Transfer	WCL	WCL above
20		Harlem Ave (beside I-290)	Park-and-Ride	CSX	CSX below
21		Austin Blvd (beside I-290)	Park-and-Ride	CSX	CSX below
22		17th Avenue (north of Cermak Road)	Park-and-Ride	CCP	at-grade
23		Hines (1st Ave north of Cermak Road)	Park-and-Ride	CCP	at-grade
24		Harlem Ave (at 26th Street)	Park-and-Ride	CCP	at-grade
25	h.	Oak Park Ave (at 28th Street)	Park-and-Ride	CCP	CCP above
26	i.	BNSF (east of LaVergne Station)	Transfer	CCP	CCP above
27		Cicero Ave (35th St/Sportsman's Park)	Park-and-Ride	BRC	at-grade

a. New pocket track for ICS trains, with ICS platform on siding; walkway to NCS platform
b. Alternate to # 7; Congress Park Station relocated to west nearer railroad junction
c. New pocket track for ICS trains, with ICS platform on siding alongside parking lot
d. No changes to existing station and parking; now used by MDW and NCS trains
e. Rehab platforms, shelters, lighting, stairs, plus add ramps to existing station
f. ICS platforms connected by walkway to new CTA center island platform; relocate CTA tracks in median
g. ICS platforms connected by walkway to platforms at existing station
h. Alternate to # 24
i. ICS platforms connected by walkway to platforms at existing station

~ potential rail-from-rail grade separation; presently crossing is at-grade
* facility plans include park-and-ride (P+R) as well as transfers between lines
** at-grade = station/parking at same grade as ICS railroad and/or crossing railroad
above = named ICS railroad is on embankment above parking lot grade and/or above crossing railroad
below = named ICS railroad is is in cut below parking lot grade and/or below crossing railroad

- A new connecting track for ICS trains would be installed between the IHB Main Line and Stockyard Branch at Argo. Diamond crossings would be required to provide access between the opposite (west) side of the Main Line right-of-way and the opposite (south) side of the Branch right-of-way.

- A new virtually exclusive track, to be used primarily for commuter operations, would be constructed along the south side of the IHB Stockyard Branch and the BRC 59th Street Branch. Diamond crossings would be required to the west of the present junction between the two branches to provide access to the opposite (south) side of the BRC right-of-way.

- A 1,000-foot layover track would be constructed south of the BRC 59th Street Branch tracks just west of Cicero Avenue to serve the Midway Airport Terminal Station.

5.1.2 Bridges

- Sixteen new single-track bridges would be required alongside the IHB Main Line tracks, including North Avenue, Lake Street, the UP West Line, St. Charles Road, Washington Boulevard, former Chicago Great Western (CGW) and Chicago, Aurora and Elgin (CA&E) rights-of-way, Madison Street, the Eisenhower Expressway, Addison Creek, Salt Creek, the BNSF (ex-Santa Fe), the Des Plaines River, MWRD's railway, the Sanitary and Ship Canal, the I&M Canal, and the IC/HC.

5.1.3 Grade Crossings

- In order to provide commuter rail speed and safety standards and accommodate the new second track, eleven IHB Main Line grade crossings would be rebuilt, including Franklin Avenue, Chestnut Avenue, Grand Avenue, 31st Street, Harding Avenue, Shawmut Avenue, Lincoln Avenue, Cossitt Avenue, 47th Street, East Avenue, and a private crossing north of the Des Plaines River.

- The grade crossing at Harlem Avenue on the IHB Stockyards Branch would also be rebuilt.

- Seven BRC 59th Street Branch grade crossings would also be rebuilt, including Narragansett Avenue, Austin Avenue, 55th Street, Central Avenue, Long Avenue, Lockwood Avenue, and Laramie Avenue.

5.1.4 Signal System

- On the IHB and BRC, bi-directional Centralized Traffic Control (CTC) would be installed on the new ICS commuter track and connecting tracks, tied into the respective IHB or BRC signal systems.

- All new crossovers and connecting tracks would require appropriate interlocking signals.

5.1.5 Stations

- O'Hare NCS Transfer [Rosemont/Chicago #1] - one platform on the stub-ended layover track; crew facility; modifications to the existing access drive

- MDW Transfer [Franklin Park #2] - one WCL platform; two MDW platforms
- North Avenue [Melrose Park #3] - one platform on the IHB embankment; ramp and stairs; parking lot with access drive to North Avenue
- UP West Line Transfer [Bellwood #4] - one platform on the IHB embankment; two UP West platforms; stairs and elevators at both ends; parking lot with access drive to 25th Avenue
- Cermak Road [Broadview #5] - one IHB platform; parking lot with access drive to 25th Avenue
- 31st Street [LaGrange Park #6] - one IHB platform; parking lot with access drive to 31st Street
- BNSF Transfer [LaGrange #7] - one IHB platform; two platforms on the BNSF embankment; stairs and elevators at both ends; parking lot with access drive
- Relocated Congress Park BNSF Station [Brookfield #8; Alternative to #7] - one IHB platform; two platforms on the BNSF embankment; stairs and elevators at both ends; parking lot with access drive
- HC Transfer [Summit #9] - one IHB platform; two HC platforms on new bridge
- Harlem Avenue [Summit/Chicago #10] - one IHB platform; parking lot with access drive
- Midway Airport Terminal Station [Chicago #11] - one platform on the stub-ended layover track; crew facility; modifications to the existing City parking lot.

5.2 OPTION 2: MDW-BRC

5.2.1 Track Work

- The O'Hare and Midway Airport Stations would require the same stub tracks as in Option 1.
- No track work would be required on the MDW, except for new crossovers at the eastern end of the MDW segment to allow ICS trains onto any track from the single-track connection.
- A new connecting track for ICS trains would be installed beside the existing MDW/BRC freight connecting track. Diamond crossings would be required to provide access to the opposite (east) side of the BRC right-of-way, and across any existing industrial leads or connecting tracks.
- A new virtually exclusive track, to be used primarily for commuter operations, would be constructed along the east side of the BRC Main Line, similar to what is described for the IHB in Option 1.
- Two half-mile-long passing sidings would be required along the BRC Main Line to allow for bi-directional operation, i.e., scheduled locations for two commuter trains to pass one another. Exact locations of these sidings would be determined following a computer simulation of operations.

- A new connecting track for ICS trains would be installed between the BRC Main Line and the 59th Street Branch. Diamond crossings would be required to provide access between the opposite (east) side of the Main Line right-of-way and the opposite (south) side of the Branch right-of-way.

- A new virtually exclusive track, to be used primarily for commuter operations, would be constructed along the south side of the BRC 59th Street Branch, similar to what is described Option 1.

5.2.2 Bridges

- Thirty-six new single-track bridges would be required alongside the BRC Main Line tracks, including Grand Avenue, North Avenue, Division Street, Augusta Boulevard, Chicago Avenue, the UP West Line, Kinzie Street, Lake Street, Fulton Street, Maypole Avenue, West End Avenue, Washington Boulevard, Madison Street, Monroe Street, Adams Street, Jackson Boulevard, Van Buren Street, Congress Street, Harrison Street, the Eisenhower Expressway/CTA Blue Line (Forest Park Branch), Polk Street, Fifth Avenue, the CSX, Roosevelt Road, 16th Street, the CTA Blue Line (Cermak Branch), Cermak Road, around 23rd Street (pedestrian-only), the Manufacturers Junction RR (MJ), Ogden Avenue, the BNSF (Metra), 26th Street, the Sanitary and Ship Canal, the BNSF (ex-Santa Fe), the IC/HC, and 47th Street.

5.2.3 Grade Crossings

- In order to provide commuter rail speed and safety standards and accommodate the new second track, the grade crossing at Archer Avenue on the BRC Main Line would be rebuilt.

5.2.4 Signal System

- On the BRC, bi-directional CTC would be installed on the new ICS commuter track and connecting tracks, tied into the BRC signal system.

- All new crossovers and connecting tracks would require appropriate interlocking signals.

5.2.5 Stations

- As described in Option 1, the O'Hare NCS Transfer Station [Rosemont/Chicago #1] and the Midway Airport Terminal Station [Chicago #1] would also be utilized in this option.

- River Grove Station [River Grove #12] and Cragin Station [Chicago #13] MDW transfer - no changes at River Grove; Cragin would require rehabilitation

- UP West Line Transfer [Chicago #14] - two platforms on the BRC embankment; two UP West platforms; elevators and stairs at both ends

- CTA Blue Line (Forest Park Branch) Transfer [Chicago #15] - two platforms on the BRC bridge; new CTA center-island platform with canopy and fare collection area; relocation of CTA tracks to accommodate platform; elevator and stairs; walkway access to local streets

- BNSF Transfer [Cicero/Chicago #16] - two platforms on the BRC embankment; two BNSF platforms, elevators and stairs at both ends; parking lot with access drive to 26th Street

- HC Transfer [Chicago #17] - one BRC platform; two HC platforms on new bridge

5.3 OPTION 3: WCL-CSX-BRC

5.3.1 Track Work

- The O'Hare and Midway Airport Stations would require the same stub tracks as in Option 1.

- The existing WCL track from B-12 in Franklin Park to Madison Street in Forest Park would be rehabilitated, while the former second track would be reinstalled for the ICS.

- The double-track CSX Altenheim Subdivision would be rehabilitated from Madison Street in Forest Park to the BRC junction in Chicago.

- Crossovers would be required at the eastern end of the CSX segment to allow ICS trains onto either track from the single-track connection.

- A new connecting track for ICS trains would be installed beside the existing CSX/BRC freight connecting track. Diamond crossings would be required to provide access to the opposite (east) side of the BRC right-of-way.

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- A new virtually exclusive track, to be used primarily for commuter operations, would be constructed along the east side of the BRC Main Line. Diamond crossings would be required across any existing industrial leads or connecting tracks. Same as Option 2, but only south of the CSX connection.

- One half-mile-long passing siding would be required along the BRC Main Line, with the exact location to be determined later, as described in Option 2.

- A new connecting track for ICS trains would be installed between the BRC Main Line and the 59th Street Branch, and a new virtually exclusive track for ICS trains would be constructed along the south side of the 59th Street Branch, as described in Option 2.

5.3.2 Bridges

- Three new single-track bridges would be required on the WCL, including Lake Street, the UP West Line, and Washington Boulevard.

- Four double-track bridges would be rehabilitated on the WCL, including North Avenue, the Des Plaines River, Chicago Avenue, and Oak Street.

- Four double-track bridges would be rehabilitated on the CSX, including Des Plaines Avenue, the Eisenhower Expressway/CTA Blue Line (Forest Park Branch), Central Avenue, and Cicero Avenue.

- Thirteen new single-track bridges would be required on the BRC Main Line, including Roosevelt Road, 16th Street, the CTA Blue Line (Cermak Branch), Cermak Road, around 23rd Street (pedestrian-only), the MJ, Ogden Avenue, the BNSF (Metra), 26th Street, the Sanitary and Ship Canal, the BNSF (ex-Santa Fe), the IC/HC, and 47th Street.

5.3.3 Grade Crossings

- In order to provide commuter rail speed and safety standards and accommodate the new second track, twelve WCL grade crossings would be rebuilt, including Parklane Avenue, Chestnut Avenue, Grand Avenue, Fullerton Avenue, George Street, 5th Avenue, 1st Avenue, Thatcher Avenue, Keystone Avenue, Augusta Avenue, Forest Avenue, and Madison Street.

- The grade crossing at Archer Avenue on the BRC Main Line would also be rebuilt.

5.3.4 Signal System

- The existing WCL signal system, upgraded as part of the NCS implementation, would be utilized from the O'Hare Transfer Station to Madison Street.

- On the BRC, bi-directional CTC would be installed on the new ICS commuter track and connecting tracks, while CSX signals would be upgraded to CTC; each would be tied into their respective signal systems.

- All new crossovers and connecting tracks would require appropriate interlocking signals.

5.3.5 Stations

- As described in Option 1, the O'Hare NCS Transfer Station [Rosemont/Chicago #1], MDW Transfer Station [Franklin Park #2], and Midway Airport Terminal Station [Chicago #11] would also be utilized in this option. As described in Option 2, the BNSF Transfer Station [Cicero/Chicago #16] and HC Transfer Station [Chicago #17] would also be utilized in this option.

- Maywood Park [Melrose Park #18] - two IHB platforms; parking lot with access drives to both North Avenue and 1st Avenue

- UP West Line Transfer [River Forest #19] - two platforms on the WCL bridge; elevator and stairs; walkway/ramp to the existing River Forest Station

- Harlem Avenue [Oak Park/Forest Park #20] - two CSX platforms; stairs and elevators from both platforms up to Harlem Avenue

- Austin Boulevard [Oak Park/Chicago #21] - two CSX platforms; stairs and elevators from both platforms up to Austin Boulevard

5.4 OPTION 4: IHB-CCP-BRC

5.4.1 Track Work

- The O'Hare and Midway Airport Stations would require the same stub tracks as in Option 1.
- The IHB track work required would be the same as in Option 1 from B-12 to the CCP junction.
- A new connecting track for ICS trains would be installed beside the existing IHB/CCP freight connecting track. Diamond crossings would be required to provide access to the opposite (west) side of the IHB right-of-way.
- The double-track CCP would be rehabilitated from the IHB in Broadview to the BRC in Cicero.
- Crossovers would be required at both ends of the CCP segment to allow ICS trains onto either track from the single-track connections.
- Since no connection presently exists in the southwest quadrant, a new connecting track for ICS trains would be installed between the CCP and the BRC Main Line. Diamond crossings would be required to provide access to the opposite (east) side of the BRC right-of-way.
- A new virtually exclusive track, to be used primarily for commuter operations, would be constructed along the east side of the BRC Main Line. Diamond crossings would be required across any existing industrial leads or connecting tracks. Same as Option 2, but only south of the CCP connection.
- One half-mile-long passing siding would be required along the BRC Main Line, with the exact location to be determined later as described in Option 2.
- A new connecting track for ICS trains would be installed between the BRC Main Line and the 59th Street Branch, and a new virtually exclusive track for ICS trains would be constructed along the south side of the 59th Street Branch, as described in Option 2.

5.4.2 Bridges

- Eight new single-track bridges would be required on the IHB Main Line, including North Avenue, Lake Street, the UP West Line, St. Charles Road, Washington Boulevard, former CGW and CA&E rights-of-way, Madison Street, and the Eisenhower Expressway.
- One new single-track bridge would be required on the CCP at 25th Avenue for the IHB lead track.
- Eleven double-track bridges would be rehabilitated on the CCP, including the Des Plaines River, Oak Park Avenue, East Avenue, Ridgeland Avenue, the BNSF (Metra), Lombard Avenue, Ogden Avenue, 59th Avenue, Central Avenue, Laramie Avenue, and Cicero Avenue.

- Four new single-track bridges would be required on the BRC Main Line, including the Sanitary and Ship Canal, the BNSF (ex-Santa Fe), the IC/HC, and 47th Street.

5.4.3 Grade Crossings

- In order to provide commuter rail speed and safety standards and accommodate the new second track, three IHB grade crossings would be rebuilt, including Franklin Avenue, Chestnut Avenue, and Grand Avenue.

- Eight CCP grade crossings would also be rebuilt, including 17th Avenue, 1st Avenue, Cermak Road, Des Plaines Avenue, Hainsworth Avenue, 26th Street, Harlem Avenue, and Riverside Parkway.

- The grade crossing at Archer Avenue on the BRC Main Line would also be rebuilt.

5.4.4 Signal System

- On the IHB and BRC, bi-directional CTC would be installed on the new ICS commuter track and connecting tracks, while CCP signals would be upgraded to CTC; each would be tied into their respective signal systems.

- All new crossovers and connecting tracks would require appropriate interlocking signals.

5.4.5 Stations

- As described in Option 1, the O'Hare NCS Transfer Station [Rosemont/Chicago #1], MDW Transfer Station [Franklin Park #2], North Avenue Station [Melrose Park #3], UP West Line Transfer Station [Bellwood #4] and Midway Airport Terminal Station [Chicago #11] would also be utilized in this option. As described in Option 2, the HC Transfer Station [Chicago #17] would also be utilized in this option.

- 17th Avenue [Broadview #22] - two CCP platforms; parking lot with access drive to 17th Avenue

- 1st Avenue [Hines #23] - two CCP platforms; parking lot with access drives to both 1st Avenue and Cermak Road

- Harlem Avenue [Berwyn/Riverside #24] - two CCP platforms; parking lot with access drives to both Harlem Avenue and 26th Street

- Oak Park Avenue [Berwyn #25; Alternative to #24] - two CCP platforms; parking lot with access drive to Oak Park Avenue

- BNSF Transfer [Berwyn #26] - two platforms on the CCP embankment; elevator and stairs to a walkway to the existing BNSF LaVergne Station

- Sportsman's Park [Cicero #27] - two CCP platforms; parking lot with access drive to Cicero Avenue

5.5 COMPARATIVE CAPITAL COST ESTIMATES

Estimated capital costs for the four potential alignment options fall within an order-of-magnitude range between $176.3 and $218.0 million, as portrayed in Table 5. In discussions with IHB and BRC management, they stated that a separate Metra-only track, parallel to their existing tracks, would be required because of freight traffic that already is often congested. The levels of freight traffic on the existing CCP and CSX route segments are considered moderate enough that a separate commuter track does not appear to be necessary. The same holds true for route segments that would operate on Metra's existing MDW and NCS routes, with the latter assuming that double track would be in place prior to any ICS implementation.

The cost estimates include a contingency level of 30% of estimated capital costs. This contingency level is appropriate since no facilities have had any in-depth design or engineering, even conceptually. The level of contingency will decrease, and the confidence in the capital cost estimates will increase, if and when the project proceeds through the design phase. Also included in the estimates is a 12% allowance for potential costs associated with the proposed project such as design, engineering, and construction management.

5.6 ADDITIONAL INFRASTRUCTURE

The probable difficulty of operating commuter trains on the same tracks with freight trains, particularly on the increasingly busy IHB and BRC freight routes, was noted earlier. At the behest of those railroads, capital costs portrayed in Table 5 include a parallel "Metra track" that would allow separated freight and commuter train operations. However, despite this separation between freight and commuter trains, there is a very real possibility that Metra's trains by themselves could encounter performance-reliability problems. For example, scheduled train meets must be timed rather precisely so that two trains operating in opposite directions on the single track will meet at the designated passing point. If there are delays for any reason to either of the trains, one train must wait on the siding until the other arrives. Instead of one late train, there would be two, and the problem would be compounded when late arrivals at the terminal begin a domino effect of late trains.

Currently, Metra has several routes on which portions are operated with only a single track. Generally, these routes provide less than the optimal full service (20-minute headways in the peak period/peak direction, hourly in both directions in off-peak) that is present on most existing Metra lines, and certainly fall short when trying to serve suburban employment destinations. Two examples illustrate the point:

- On the Milwaukee District North Line (MD-N) to Fox Lake, there is no reverse-commute service on the single-track segment west of Rondout to take potential commuters to or from suburban jobs in the peak period. This is due to the steady stream of peak-period trains that serve peak-direction commuters, while there is no second track which could allow for reverse-commute trains to pass them. In the morning, the first Chicago-bound train leaves Fox Lake at 4:50 a.m., while the first outbound (reverse-commute) train does not arrive in Fox Lake until 8:31 a.m. In the evening, no Chicago-bound train leaves Fox Lake between 4:05 p.m. and 7:15 p.m. In addition, hourly service in the off-peak is only available to Grayslake, with the four station stops northwest of Grayslake having only two-hour service due to the inability of trains to recycle and pass each other on the single track (the Grayslake train lays over on a siding).

- On the 2½-year-old North Central Service (NCS) to Antioch, only limited service consisting of four trains (roughly 30-minute headways) in the peak-period peak-direction is available, due to the line being mostly a single-track operation. A single midday train is provided in each direction in the off-peak. Any potential expansion of this service, for which there is great demand, must await the completion of the second track. While some of the new NCS commuters might feel that something is better than nothing, the fact remains that this service is not competitive with adjacent full-service lines. Therefore, it has not achieved its full potential of diverting riders to the new service, relieving pressure on commuter parking at several existing stations as intended.

The best way to eliminate or at least significantly reduce potential operating problems created by single-track operation is to provide for a double-track commuter operation, with trains running in a single direction. Operation on both of these tracks still must be designed for bi-directional operation, i.e., trains can operate in either direction on either track, so that in emergencies (such as a train breaking down and blocking the route) Metra trains can be routed around disabled trains. Physically the system would require two main tracks plus a series of crossovers and interlockings allowing the flexibility to switch mains, as well as double the number of turnouts, diamonds, and signals. Grade crossings would have to allow for a second track, and second bridges would also be required at each location. Station facilities would have to provide a second platform, including stairways and ramps to access them. Essentially, all of the estimated capital cost figures would be doubled with the exception of rolling stock and depots/parking lots at stations.

Metra prides itself on its on-time performance on the existing system, making every effort to provide consistent and reliable service. Potential new services, including the proposed ICS, must not be allowed to degrade that record. However, providing a service that can take people to suburban job locations is a particularly important aspect of the potential (so-called) circumferential routes that do not terminate in downtown Chicago. The proposed ICS and the proposed Outer Circumferential Service (OCS) routes would serve not only multiple residential origins (like existing lines now serve) but also multiple employment destinations (not the concentrated Chicago CBD like existing lines now serve), presenting a critical need to provide frequent service throughout the service-day. Since there would be any number of suburban employment concentrations that must be served, the assumption has therefore been made that the ICS and the OCS must provide a minimum of three-hour-peak 30-minute headways, and hourly service throughout an 18-hour service-day, in order to be effectively utilized to their full potential by new Metra commuters.

Further studies will provide more information on potential ridership and how different service levels might influence Metra's ability to attract commuters on these new lines. In particular, the line capacity analyses in Phase II will test the numbers of trains that can be operated on various levels of physical infrastructure that might be provided. However, Metra knows from experience that, in general, providing more trains attracts more riders. In order to operate more trains, double track should be the primary objective. Pending results of future studies, Table 6 summarizes comparative capital cost estimates for parallel single- and double-track alternatives for Option 1: IHB-BRC Alignment. Physically the system would require two main tracks plus a series of crossovers and interlockings allowing the flexibility to switch mains, as well as double the number of turnouts, diamonds, and signals. Grade crossings would have to allow for a second track, and second bridges would also be required at each location. Station facilities would have to provide a second platform, including stairways and ramps to access them. Essentially, all of the estimated capital cost figures would be doubled with the exception of rolling stock and depots/parking lots at stations.

Table 5
Comparative Capital Cost Estimates for Four Alignment Options

Categories of Capital Infrastructure Requirements			Alignment Options							
			Option 1		Option 2		Option 3		Option 4	
			IHB-BRC		MDW-BRC		WCL-CSX-BRC		IHB-CCP-BRC	
			Estimated Cost		Estimated Cost		Estimated Cost		Estimated Cost	
Description	**Unit**	**Unit Cost**	**Quantity**	**Cost [1]**	**Quantity**	**Cost [1]**	**Quantity**	**Cost [1]**	**Quantity**	**Cost [1]**
New Track, including Grading (Ground Level)	Track-mile	$ 1,500,000	19.6	$ 29.4	12.1	$ 18.2	12.6	$ 18.9	11.9	$ 17.9
Major Excavation and Grading (New Embankment)	Track-mile	$ 1,000,000	6.5	$ 6.5	7.8	$ 7.8	4.3	$ 4.3	5.8	$ 5.8
Rehabilitated Track	Track-mile	$ 500,000	0.0	$ -	0.0	$ -	13.2	$ 6.6	12.2	$ 6.1
Install Turnouts	Each	$ 150,000	7	$ 1.1	7	$ 1.1	5	$ 0.8	7	$ 1.1
Install Crossovers	Each	$ 300,000	0	$ -	2	$ 0.6	2	$ 0.6	4	$ 1.2
Install Diamonds	Each	$ 300,000	20	$ 6.0	11	$ 3.3	7	$ 2.1	20	$ 6.0
	Subtotal Track Work			**$ 43.0**		**$ 30.9**		**$ 33.3**		**$ 38.0**
New Bridges	Linear Foot	$ 10,000	2,900	$ 29.0	4,300	$ 43.0	2,200	$ 22.0	2,400	$ 24.0
Rehabilitated Bridges	Linear Foot	$ 4,000	0 [2]	$ 1.0	0	$ -	2,900	$ 11.6	2,800	$ 11.2
	Subtotal Bridges			**$ 30.0**		**$ 43.0**		**$ 33.6**		**$ 35.2**
Rebuild Existing Track Crossing	Each	$ 25,000	0	$ -	0	$ -	2	$ 0.1	16	$ 0.4
Install Additional Track through Crossing and Rebuild	Each	$ 105,000	0	$ -	0	$ -	0	$ -	0	$ -
Upgrade Existing Crossing to CFBG	Each	$ 200,000	0	$ -	0	$ -	0	$ -	0	$ -
Install Additional Track, Rebuild Crossing, Relocate Signals	Each	$ 355,000	19	$ 6.7	1	$ 0.4	12	$ 4.3	4	$ 1.4
Add Constant Warning Time Devices	Each	$ 150,000	19	$ 2.9	1	$ 0.2	13	$ 2.0	12	$ 1.8
	Subtotal Grade Crossings			**$ 9.6**		**$ 0.5**		**$ 6.3**		**$ 3.6**
Install New Interlockings	Each	$ 1,500,000	17	$ 25.5	13	$ 19.5	8	$ 12.0	18	$ 27.0
Modify Existing Interlockings	Each	$ 1,000,000	0	$ -	0	$ -	0	$ -	0	$ -
Install Intermediate Signals, Bi-Directional CTC	Each	$ 450,000	6	$ 2.7	3	$ 1.4	1	$ 0.5	1	$ 0.5
Install Intermediate Signals, One Track/One Direction	Each	$ 150,000	0	$ -	0	$ -	4	$ 0.6	4	$ 0.6
	Subtotal Signal System			**$ 28.2**		**$ 20.9**		**$ 13.1**		**$ 28.1**
Park-and-Ride Stations/Transfer Facilities	Lump Sum [3]	n/a	10	$ 18.3	8	$ 14.1	9	$ 13.5	11	$ 21.3
Overnight Coach Storage Yard/Maintenance Facility	Lump Sum [3]	n/a	1	$ 2.0	1	$ 2.0	1	$ 2.0	1	$ 2.0
	Subtotal Stations and Coach Storage Yard			**$ 20.3**		**$ 16.1**		**$ 15.5**		**$ 23.3**
Subtotal for Physical Plant including Stations				**$ 131.0**		**$ 111.3**		**$ 101.6**		**$ 128.2**
Contingency (30%)				$ 39.3		$ 33.4		$ 30.5		$ 38.4
Engineering, Design, and Construction Management (12%)				$ 15.7		$ 13.4		$ 12.2		$ 15.4
ESTIMATED CAPITAL COST OF IMPROVEMENTS TO PHYSICAL PLANT				**$ 186.0**		**$ 158.1**		**$ 144.3**		**$ 182.0**
Locomotives (including one spare)	Each	$ 2,400,000	5	$ 12.0	5	$ 12.0	5	$ 12.0	5	$ 12.0
Coaches (including two spares)	Each	$ 2,000,000	10	$ 20.0	10	$ 20.0	10	$ 20.0	10	$ 20.0
	Subtotal Rolling Stock			**$ 32.0**		**$ 32.0**		**$ 32.0**		**$ 32.0**
TOTAL ESTIMATED CAPITAL COST (millions of 1997 dollars)				**$ 218.0**		**$ 190.1**		**$ 176.3**		**$ 214.0**
Total Route Length [4] / Estimated Capital Cost Per Route Mile			**21.8**	**$ 10.0**	**20.5**	**$ 9.3**	**19.7**	**$ 8.9**	**20.7**	**$ 10.3**
New Commuter Route Length [4] / Estimated Capital Cost Per New Mile			**17.4**	**$ 12.5**	**9.9**	**$ 19.2**	**15.3**	**$ 11.5**	**16.3**	**$ 13.1**

[1] Figures are in millions of dollars, rounded to single decimal point. They may contain further decimals that are not displayed, so some will not appear to add correctly.

[2] Estimated cost to rehabilitate existing bridge abutments to allow additional track at the IHB underpass beneath the Metra BNSF in LaGrange (special circumstance).

[3] Station cost figures are order-of-magnitude estimates, with site-specific factors such as length of platform, size of depot or parking lot (all require ridership estimates) subject to change in MIS or Phase II Feasibility Study. Additional land for parking expansion or potential environmental concerns that could require mitigation will be determined at that time. **THERE ARE NO COST ESTIMATES FOR LAND ACQUISITION OF POTENTIAL STATION SITES, COACH YARD STORAGE SPACE, OR ADDITIONAL RIGHT-OF-WAY.**

[4] "Total Route Length" is track mileage from O'Hare Airport Terminal Station to Midway Airport Terminal Station, while "New Commuter Route Length" is track mileage only on portion of routes that are currently freight-only. It is assumed that no additional improvements would be necessary on existing NCS and MDW lines. Commuter route length on freight-only lines includes passing sidings, new connecting tracks, etc. as part of new track mileage.

Tables 6

Comparative Capital Cost Estimates for Two IHB-BRC Alternatives

			IHB-BRC Alternatives			
			Single Track		Double Track	
Categories of Capital Infrastructure Requirements			Estimated Cost		Estimated Cost	
Description	**Unit**	**Unit Cost**	**Quantity**	**Cost [1]**	**Quantity**	**Cost [1]**
New Track, including Grading (Ground Level)	Track-mile	$ 1,500,000	19.6	$ 29.4	39.2	$ 58.8
Major Excavation and Grading (New Embankment)	Track-mile	$ 1,000,000	6.5	$ 6.5	13.0	$ 13.0
Rehabilitated Track	Track-mile	$ 500,000	0.0	$ -	0.0	$ -
Install Turnouts	Each	$ 150,000	7	$ 1.1	14	$ 2.1
Install Crossovers	Each	$ 300,000	0	$ -	4	$ 1.2
Install Diamonds	Each	$ 300,000	20	$ 6.0	40	$ 12.0
	Subtotal Track Work			**$ 43.0**		**$ 87.1**
New Bridges	Linear Foot	$ 10,000	2,900	$ 29.0	5,800	$ 58.0
Rehabilitated Bridges	Linear Foot	$ 4,000	0 [2]	$ 1.0	0 [2]	$ 6.0
	Subtotal Bridges			**$ 30.0**		**$ 64.0**
Rebuild Existing Track Crossing	Each	$ 25,000	0	$ -	0	$ -
Install Additional Track through Crossing and Rebuild	Each	$ 105,000	0	$ -	19	$ 2.0
Upgrade Existing Crossing to CFBG	Each	$ 200,000	0	$ -	0	$ -
Install Additional Track, Rebuild Crossing, Relocate Signals	Each	$ 355,000	19	$ 6.7	19	$ 6.7
Add Constant Warning Time Devices	Each	$ 150,000	19	$ 2.9	19	$ 2.9
	Subtotal Grade Crossings			**$ 9.6**		**$ 11.6**
Install New Interlockings	Each	$ 1,500,000	17	$ 25.5	21	$ 31.5
Modify Existing Interlockings	Each	$ 1,000,000	0	$ -	0	$ -
Install Intermediate Signals, Bi-Directional CTC	Each	$ 450,000	6	$ 2.7	12	$ 5.4
Install Intermediate Signals, One Track/One Direction	Each	$ 150,000	0	$ -	0	$ -
	Subtotal Signal System			**$ 28.2**		**$ 36.9**
Park-and-Ride Stations/Transfer Facilities	Lump Sum [3]	n/a	10	$ 18.3	10	$ 23.6
Overnight Coach Storage Yard/Maintenance Facility	Lump Sum [3]	n/a	1	$ 2.0	1	$ 2.0
Subtotal Stations and Coach Storage Yard				**$ 20.3**		**$ 25.6**
Subtotal for Physical Plant including Stations				**$ 131.0**		**$ 225.2**
Contingency (30%)				$ 39.3		$ 67.6
Engineering, Design, and Construction Management (12%)				$ 15.7		$ 27.0
ESTIMATED CAPITAL COST OF IMPROVEMENTS TO PHYSICAL PLANT				**$ 186.0**		**$ 319.8**
Locomotives (including one spare)	Each	$ 2,400,000	5	$ 12.0	5	$ 12.0
Coaches (including two spares)	Each	$ 2,000,000	10	$ 20.0	10	$ 20.0
	Subtotal Rolling Stock			**$ 32.0**		**$ 32.0**
TOTAL ESTIMATED CAPITAL COST (millions of 1997 dollars)				**$ 218.0**		**$ 351.8**
Total Route Length [4] / Estimated Capital Cost Per Route Mile			**21.8**	**$ 10.0**	**21.8**	**$ 16.1**
New Commuter Route Length [4] / Estimated Capital Cost Per New Mile			**17.4**	**$ 12.5**	**17.4**	**$ 20.2**

[1] Figures are in millions of dollars, rounded to single decimal point. They may contain further decimals that are not displayed, so some will not appear to add correctly.

[2] Estimated cost to rehabilitate existing bridge abutments to allow additional track at the IHB underpass beneath the Metra BNSF in LaGrange (special circumstance).

[3] Station cost figures are order-of-magnitude estimates, with site-specific factors such as length of platform, size of depot or parking lot (all require ridership estimates) sub change in MIS or Phase II Feasibility Study. Additional land for parking expansion or potential environmental concerns that could require mitigation will be determined at tl THERE ARE NO COST ESTIMATES FOR LAND ACQUISITION OF POTENTIAL STATION SITES, COACH YARD STORAGE SPACE, OR ADDITIONAL RIGHT-OF-WAY.

[4] "Total Route Length" is track mileage from O'Hare Airport Terminal Station to Midway Airport Terminal Station, while "New Commuter Route Length" is track mileage only o portion of routes that are currently freight-only. It is assumed that no additional improvements would be necessary on existing NCS and MDW lines. Commuter route len freight-only lines includes passing sidings, new connecting tracks, etc. as part of new track mileage.

6.0 RECOMMENDATIONS

This Phase I Feasibility Study has examined potential route options for providing a new commuter rail service through the study area, in order to determine whether any of them might be physically and financially feasible. The Study has also determined the level of community support, i.e., which cities or villages would agree to sponsor and fund potential stations and parking facilities, should the proposed project reach the implementation stage. The intent was either to recommend one or more of the alignment options for more detailed studies, or to decide that no further studies should be pursued if all options were deemed physically or financially infeasible and/or where little local support was evident.

This report has shown that all of the potential routes appear to be physically feasible. However, there are major capital costs involved for all options, particularly when separate commuter-only tracks are necessary to avoid conflicts with freight trains. For most options, local support is mixed. Based on the summary evaluations (see Section 6.3), this Phase I Feasibility Study recommends that only Option 1: IHB-BRC Alignment be studied further. It should be understood that this conclusion and recommendation is qualified based on the findings in this Study phase alone, and does not account for any "unknowns" that may emerge from more detailed studies. Furthermore, at the present time the results of this Study phase cannot and should not be construed as indicating that the recommended IHB-BRC route will be considered operationally viable or even desirable at the completion of the remaining Study phases.

6.1 ELEMENTS OF A MAJOR INVESTMENT STUDY

The sequence of studies that are required to determine the feasibility of new commuter rail routes provides that the next step be a Phase II Feasibility Study. However, implementation and start-up costs that would exceed Federal criteria and could be considered as "major," suggests that a Major Investment Study (MIS) should precede the Phase II Feasibility Study. Such studies are mandated by the Federal government prior to funding allocations to proceed with implementation. [Note that in TEA-21, the successor to ISTEA, the terminology has changed but the function remains similar.] A MIS is required to evaluate the comparative suitability (against other potential modes of transportation) of providing commuter rail service in new corridors or expanded service in existing corridors. Five modes can be analyzed as possible solutions:

- **Baseline:** Base alternative incorporates planned improvements that are part of the 2020 Regional Transportation Plan, i.e., they are assumed to exist before the new proposals are considered.

- **Highways:** Alternatives include expansion of any number of possible routes, both existing expressways and major arterial roads, by adding lanes to increase capacity.

- **Rail Routes:** Alternatives include beginning new service, infrastructure upgrades to expand service (including schedule expansion to "full service"), extension of existing lines to serve new areas, new or increased parking facilities and/or additional trains on existing routes.

- **Bus Routes:** Alternatives include new or expanded service on feeder routes, remote parking lots with shuttle buses, or express bus service that complements the train schedule.

- **Transportation Management:** Alternatives include a variety of strategies within the classes of demand management, system management, and intelligent transportation systems.

The potential commuter rail alternative must be measured against other modes, in order to determine if commuter rail service is the most effective and feasible option for serving the travel demand, or at least is superior to all other options. After developing all of the possible alternatives specific to the corridor in question, screening measures are used to pare down the list to options which appear to be most feasible. (Alternatives screened out from further consideration must have appropriate rationale for their dismissal.) Each of the remaining options are then evaluated further with respect to travel demand and travel times; estimated capital and operating costs; local (study area) social and environmental impacts; and broader regional benefits of the potential ICS service such as air quality improvements, reductions in vehicular miles traveled, and enhanced travel-efficiency contributions to the commuter rail system.

Keeping with the intent that this Phase I Study could have declared all rail options feasible, the MIS should precede the detailed work required in Phase II. The MIS would seek to declare that the commuter rail alternative would make the greatest contribution toward serving travel demand and relieving traffic congestion in the study area. Since Federal dollars are most assuredly the primary portion of the eventual funding package for implementation, it makes sense to fulfill the Federal requirement before the more-detailed studies (some of which are quite expensive and time consuming) in Phase II. Travel demand forecasts, which were outlined for study in Phase II, would become a part of the MIS. Following sufficient evaluation in the MIS process, and presuming that commuter rail is found to be the best alternative for addressing present and future travel demand in the given corridor, the Phase II Feasibility Study would begin.

6.2 ELEMENTS OF A PHASE II FEASIBILITY STUDY

A Phase II Feasibility Study would be designed to evaluate the Phase I recommendation within a more in-depth and expanded scope. It would also allow for a more effective use of financial resources and efficient use of the time required to perform the Study. This Phase I Study has identified Option 1: IHB-BRC Alignment as the commuter rail route option for further study and for a continuation into a Phase II Study. A Phase II Feasibility Study includes the following general elements:

- Ridership estimates would be completed utilizing the most recently accepted regional-planning base-year demographic and socioeconomic forecasts. This would include evaluating travel demand, travel time, service frequency, rail transfer options, intermodal transfers, and service fares. If this has been completed for the MIS, probably only an update and review would be necessary.

- Environmental assessment would focus upon construction impacts, water systems and wetlands, air quality issues, noise and vibration, living species, historical issues and other actions which could require recommended mitigation strategies.

- Site studies would evaluate physical locations of existing and potential rail infrastructure such as crossovers, turnouts, additional passing sidings, interlockings and CTC signal systems, at-grade highway crossings, and rail-from-rail or rail-from-highway grade separations.

- Line capacity analyses would evaluate a variety of commuter and freight train operating scenarios on the recommended alignment. Operating scenarios would consider conditions such as freight train densities and system capacities, operating rules that regulate speed and signal restrictions, freight system volume forecasts, and the potential for the maximum allowable number of commuter trains, including scheduled revenue trains and non-revenue trips.

- Refined cost estimates would include more-detailed and site-specific capital cost estimates, as well as identification of costs that are subject to change as a result of updated design and engineering specifications. In particular, the revised cost estimates would take into account additional infrastructure needs identified by the line capacity analyses.

6.3 SUMMARY ALIGNMENT EVALUATIONS

A variety of tangible benefits might be expected as a result of providing commuter rail service on any of the four alignment options that were studied. Such benefits could range from opportunities that communities in the study area might derive from local response to the inception of commuter rail service to broader regional benefits such as congestion mitigation and improvements to air quality. Benefits that are common to each recommended rail alignment option include:

- increased modal choices and enhanced intermodal options
- reduced auto emissions and roadway congestion levels
- improved access to employment centers and greater employment mobility for the economic health of both the study area and the overall region
- opportunities to enhance comprehensive and development plans of individual communities
- infrastructure enhancements such as commuter rail stations which could serve as community focal points for transit-oriented developments
- direct rail access between Midway and O'Hare Airports

As shown in Table 5, the estimated capital costs for the alignment options fall within an order-of-magnitude range between $176.3 and $218.0 million, a spread of over $40 million, with two at the lower end and two at the higher end. Estimated capital costs per mile over the entire length of each potential route are in a fairly close range, while costs per mile of <u>new</u> trackage (i.e., route segments not duplicated with existing routes) have more variation. The evaluation of alignment options should not focus solely on the lowest cost estimate, since those with higher costs might also have more stations and general community support.

The cost estimates include a contingency level of 30% of estimated capital costs. This contingency level is appropriate since no facilities have had any in-depth design or engineering, even conceptually. The level of contingency will decrease, and the confidence in the capital cost estimates will increase, if and when the project proceeds through the design phase. Also included in the estimates is a 12% allowance for potential costs associated with the proposed project such as design, engineering, and construction management. These order-of-magnitude capital cost estimates have been utilized to compare the alignment options.

In the following subsections, a series of positive and negative elements [pluses (+) and minuses (-)] are presented in dot-point fashion to highlight both the objective and subjective conclusions regarding the feasibility of potential circumferential commuter rail service in the study area. The general recommendation is to study only one of the alignment options further, obviously in much greater detail, in order to first ascertain that commuter rail service is the best alternative to addressing travel needs within the corridor, and second to portray that there could be a reasonable cost/benefit result from implementing the IHB-BRC route.

6.3.1 Option 1: IHB-BRC Alignment

+ Four new transfer points at crossings with radial lines, plus one transfer point with the NCS at O'Hare Transfer, all of which provide connections to existing Metra commuter rail service
+ Six potential new stations with park-and-ride facilities (some coinciding with transfer points), allowing new rail commuters to utilize Metra as a travel option
+ Four communities (Bellwood, Broadview, LaGrange Park, and Cicero) with identified sites or at least expressed interest in potential transit-oriented development opportunities
+ Commuter rail service for the largest number of communities in west suburban Cook County that currently do not have Metra stations of their own
+ No known opposition among communities to using this route for new Metra service; rather, the best option in terms of unanimity among the towns that would be served
- Necessity of constructing a separate commuter-only track to avoid conflicts with freight service that could require retaining walls and possible right-of-way acquisition at various locations
- Interlocked diamond crossings of freight mains at four different locations provide potential for unreliable service caused by freight train interference
- Substantial capital costs for series of new bridges over two busy freight lines and several waterways in the area of the Sanitary and Ship Canal, part of a total of sixteen new single-track bridges over rail routes and local streets or highways

6.3.2 Option 2: MDW-BRC Alignment

+ Three new transfer points at crossings with radial lines, plus one transfer point with the NCS at O'Hare Transfer, all of which provide connections to existing Metra commuter rail service
+ One community (Cicero) with at least expressed interest in potential transit-oriented development opportunities
- Necessity of constructing a separate commuter-only track to avoid conflicts with freight service that could require retaining walls and possible right-of-way acquisition at various points along the BRC
- Interlocked diamond crossings of freight mains at two different locations provide potential for unreliable service caused by freight train interference
- Substantial capital costs for series of thirty-six new single-track bridges over existing rail routes and local streets or highways
- No new park-and-ride station locations identified; only one at an existing commuter station that is on an existing line over which the ICS trains would operate
- Running ICS trains on existing NCS and MDW lines, 52% of the route mileage is redundant; the other options only operate over the NCS segment, creating a lower 20-22% route redundancy
- Potential conflict with plans for Mid-City Transitway in same corridor and on same right-of-way

6.3.3 Option 3: WCL-CSX-BRC Alignment

+ Four new transfer points at crossings with radial lines, plus one transfer point with the NCS at O'Hare Transfer, all of which provide connections to existing Metra commuter rail service
+ Four potential new stations with park-and-ride facilities (one coinciding with a transfer point), allowing new rail commuters to utilize Metra as a travel option
+ Two communities (Oak Park and Cicero) with identified sites or at least expressed interest in potential transit-oriented development opportunities
+ Although only assumed at this point, potential mixed use of double-track WCL and CSX segments eliminates need for separate commuter-only track
- Two communities (River Forest and Forest Park) on record as not wanting this ICS route option to pass through their towns
- Necessity of constructing a separate commuter-only track to avoid conflicts with freight service that could require retaining walls and possible right-of-way acquisition at various points along the BRC
- Interlocked diamond crossings of freight mains at two different locations provide potential for unreliable service caused by freight train interference
- Substantial capital costs for sixteen new single-track bridges and eight rehabilitated double-track bridges over existing rail routes and local streets or highways

6.3.4 Option 4: IHB-CCP-BRC Alignment

+ Four new transfer points at crossings with radial lines, plus one transfer point with the NCS at O'Hare Transfer, all of which provide connections to existing Metra commuter rail service
+ Six potential new stations with park-and-ride facilities (one at an existing commuter station that coincides with a transfer point), allowing new rail commuters to utilize Metra as a travel option
+ Three communities (Bellwood, Broadview, and Cicero) with expressed interest in potential transit-oriented development opportunities
+ Although only assumed at this point, potential use of double-track CCP segment eliminates need for separate commuter-only track
- Two communities (North Riverside and Berwyn) on record as not wanting this ICS route option to pass through their towns
- Necessity of constructing a separate commuter-only track to avoid conflicts with freight service that could require retaining walls and possible right-of-way acquisition at various points on the IHB/BRC
- Interlocked diamond crossings of freight mains at four different locations provide potential for unreliable service caused by freight train interference
- Substantial capital costs for thirteen new single-track bridges and eleven rehabilitated double-track bridges over existing rail routes and local streets or highways

6.4 RECOMMENDED PHASE II ALIGNMENT

The preceding subsections portray the Option 1: IHB-BRC Alignment as the only alignment alternative in which the pluses outweigh the minuses. Option 1 has strong community support throughout the area that it traverses, including several communities willing to sponsor park-and-ride stations along the route. Given the usually tenuous nature of obtaining funding for any major new commuter rail service proposal, it is essential to have most or all of the local communities solidly behind the potential service. The City of Chicago is studying the BRC Main Line corridor as part of the Mid-City Transitway, which would become part of the CTA network of rapid transit lines. Unlike the other options, Option 1 is the only option that would not use any portion of the BRC Main Line; rather, the last leg would be alongside the BRC 59th Street Branch. In addition, the Option 1: IHB-BRC Alignment duplicates the least amount of existing service of all alignment options studied, a 20% redundancy when operating over the existing NCS segment to access O'Hare. Despite the higher estimated capital costs and potential difficulties that must be studied further and resolved, the IHB-BRC alignment is the only ICS option that is recommended for further study.

When comparing the pluses and minuses of the other options, Option 2: MDW-BRC Alignment leans heavily toward negative elements, while Option 3: WCL-CSX-BRC Alignment and Option 4: IHB-CCP-BRC Alignment are evenly split. The primary difficulties with Option 2 are the fact that more than half of the route is essentially redundant, and there would be no new park-and-ride facilities sponsored by local communities. Although evenly split between pluses and minuses, Options 3 and 4 each have two communities that are opposed to additional trains (including commuter trains) running on the existing freight tracks, and therefore do not desire park-and-ride stations. These objections are the tiebreaker among the pluses and minuses, since Metra generally does not wish to pursue potential new routes that have only limited or mixed support. Finally, Options 2, 3, and 4 would conflict with the City of Chicago's Mid-City Transitway plans, as each alignment would utilize portions of the BRC Main Line route.

Pending that Study funds are secured, it is recommended that Option 1 continue to the (renamed) MIS and Phase II Study levels. The MIS process has a public forum component that will substantiate the level of local public support. It would try to resolve any issues over whether or not commuter rail can be a useful contributor to congestion mitigation and improved air quality in this relatively densely populated suburban subregion. The MIS process would also determine projected ridership in order to justify the probable capital expenditures. The Phase II Study would then examine environmental aspects of the potential station sites, perform detailed line capacity analyses to get a better understanding of infrastructure needs, and seek solutions to resolve potential freight/passenger train conflicts in order to make the proposed service reliable.

The Phase I Study capital cost estimates were limited to compiling general per-mile costs for new track, unit costs for crossings and interlockings, and per-linear-foot costs for new or rehabilitated bridges. In Phase II, some preliminary design and engineering would be performed to provide more accuracy and thorough knowledge of, for example, where retaining walls would be required to support new embankment, any potential locations where new right-of-way would have to be acquired, and specifics on bridge requirements such as enough room for abutments and linear clearance for maintaining grades on bridge approaches. Once more specifics are known, more-detailed and "tighter" capital cost estimates could be developed. The revised capital cost estimates would then be compared with ridership projections to ascertain that an Inner Circumferential commuter rail route really could become a viable part of the regional rail system, particularly in cost-benefit terms. The ICS might be an important step toward creating a true regional commuter rail network which provides cross-region travel that intersects several of Metra's existing radial CBD-oriented lines, substantially increasing commuter rail's utility for moving people.