

Union Station and Crossrail

A Return To Bold Planning for the Chicago Region

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Chicago Union Station straddles Canal Street, taking up two blocks in what is today called the West Loop. Its original Concourse building (fore) was demolished in 1969. Its headhouse building (rear) remains intact.

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The concourse was an open, naturally lighted space leading to trains.

The headhouse features the famous barrel vaulted skylight of its Great Hall.



Preface

This book considers the challenges and the possibilities of Chicago's Union Station. To emphasize its importance and the far-reaching geography concerned, it takes as its subtitle, "A Return To Bold Planning for the Chicago Region."

The book shows how Union Station can become the centerpiece of a vastly improved transportation system for Chicago and the Midwest. It is arranged in three chapters:

Chapter 1 Union Station Now: the current Master Plan and how to fund it;

Chapter 2 Union Station Transformation: becoming a nexus of high speed intercity and high frequency regional rail;

Chapter 3 Union Station Strategy: policies and institutions to make the transformation happen.

The first chapter contains ten sections. It looks to the medium term future, 20 to 30 years out, in its discussion of the \$200 million Master Plan. The subsequent chapters look much further, 30 to 40 years into the future, for \$2 billion and more in investment.

The second chapter contains six sections divided into subsections. It describes three systems that, if built, will greatly expand capacity of regional transit in the Chicago area and the Midwest. The systems converge on Union Station, remaking it into a preeminent point of connectivity for city and region.

The third chapter describes political and financial challenges to building these major regional systems and offers a path to completing them. It acknowledges the limitations of current regional governance and argues that the imperative of building these systems should compel the creation of special authorities to complete them.



The West Side Elevated crossed directly over the station's south platforms.

Chapter 1 Union Station Now: the current Master Plan and how to fund it

The train station that didn't die and now needs to grow

Chicagoans who ride trains know Union Station from two perspectives. It is as if the old train station were separated into two separate parts showing two quite distinct characters. Daily commuters on Metra move quickly through its crowded, claustrophobic concourse on their way to trains that connect city to suburbs. But Amtrak passengers on long-distance trains might linger in the Great Hall in the station's headhouse. It is an enormous, elegant waiting room; a dignified and rather calming place beneath a high skylight ceiling.

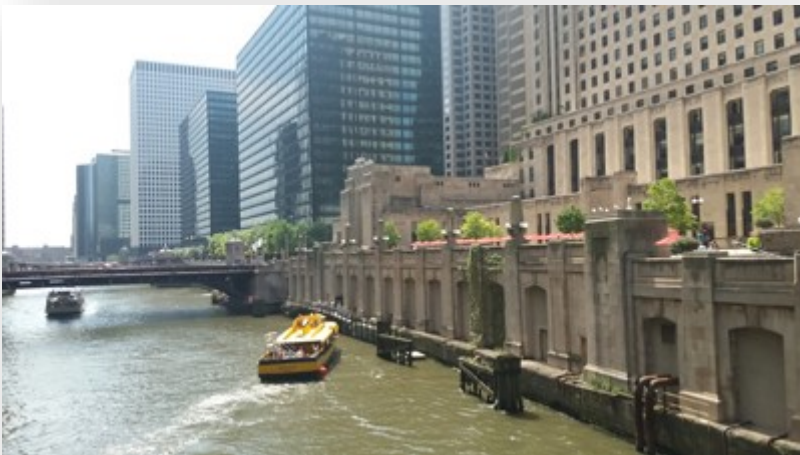
This headhouse is, indeed, one of the city's great public buildings from the golden age of railroading. It is fronted by neo-classical columns and façades on four sides. It fills a whole block west of Canal Street, from Adams to Jackson. In contrast, its counterpart concourse is quashed in the basement of a tall office



The original concourse building's interior and demolition (right).



This large office building replaced the concourse building.



Buildings now stand over the tracks; the old Daily News on right.

tower directly across Canal Street along the Chicago River. The two are connected by a wide passage beneath Canal Street.

These two very different spaces were a harmonious whole, a two-block, two-building assembly of magnificent proportions, when Union Station first opened nearly 100 years ago. In 1925 it was hailed as one of the best transportation facilities in the world. It was a state-of-the-art Hauptbahnhof; a modern and more graceful O'Hare of the railroad age.

Departing passengers moved with ease from taxis into the Great Hall, thence to the concourse leading to the platforms, all without walking up or down a single flight of steps. Their luggage was loaded from separate, specially designed baggage platforms running between the trains. Arriving passengers claimed their luggage in the concourse. They could walk to the Great Hall to catch taxis or, should they wish, follow a walkway to the West Side Elevated, which would carry them to many points across the city.

Chicago Union Station (CUS) opened at the very height of the railroad age, just as airplanes and paved highways for automobiles were coming on the scene. The railroads, and Union Station with them, went into a long decline. The concourse building, an exquisite, light-filled structure of steel columns and arches, so handsomely matched with the headhouse building across the street, was tragically demolished in 1969. The struggling railroads that owned Union Station were desperate for income and they assumed that passenger rail travel would continue to diminish. So they sold air rights over the concourse and allowed its replacement to be crammed into the aforementioned office building's basement.

But train travel did not die. To the contrary it revived and CUS made a comeback beginning in the 1970s, with passenger volumes gradually increasing from then until today. It's a busy place and it remains a critical transportation nexus for Chicago, one of equal importance to the airports.

Amtrak, now the owner of CUS, oversaw a much needed concourse renovation that was finished in 1991. This increased

its capacity and improved conditions in the basement quite a bit. But passenger volumes have continued to rise since then and the station has reached a limit. A plan is now in place to expand its capacity, to handle anticipated increases in Amtrak intercity and Metra commuter traffic.

Planners are looking medium-term, anticipating more passengers on more trains in the next 20 to 30 years. And they're looking long term, 30 to 40 years in the future, as they think about how the station should change to support high speed rail and really transformative services. Preliminary design and engineering is underway. But no funding for final engineering and construction has yet been found. Meanwhile, long range visions for Union Station remain little more than drawings on paper.

Amtrak the landlord

Most people probably think Union Station consists of just two buildings: headhouse (the 'Great Hall') and concourse. Few know that the station complex comprises one of the largest landholdings in Chicago.

It extends nearly 25 blocks in length, north to south, and one block in width from Canal Street eastward to the Chicago River. It runs from the north concourse northward to the block between Fulton and Kinzie (400 N), where the three tracks of the north approach curve across Canal Street. It runs from the south concourse southward to 21st Street (2100 S), to the steel truss lift bridge that carries the tracks across the south branch of the Chicago River. Much of Canal Street itself, as well as parts of some of the cross-streets, are on viaducts on air rights or easements over the property. The only blocks west of Canal Street are the two between Adams and Van Buren Streets (where the headhouse stands on the block between Adams and Jackson).

Altogether it amounts to approximately 200 acres of central city real estate. It's an enormous holding. But much of it lay unseen

beneath buildings with 'air rights' standing over the station's approach tracks. Notable air-rights buildings include the Old Main Post Office and the Daily News buildings. They're part of a long bank of buildings that extends from a new high-rise south of Kinzie Street (333 N. Canal) to the New Post Office at Harrison Street. The tracks finally emerge from under the Post Office and see daylight south of Polk Street, where they fan out to a large switching and maintenance yard.

Who owns it all? Amtrak is the current owner. But it is the legacy of the Chicago Union Station Company (CUSCo), which was incorporated in 1913 to build and manage Union Station. CUSCo was founded and owned by four companies: the Chicago, Burlington and Quincy Railroad (CB&Q), the Chicago, Milwaukee, St. Paul and Pacific Railroad (Milwaukee Road), and two subsidiaries of the Pennsylvania Railroad (PRR). Amtrak, a quasi-governmental agency created in 1970 to take over the railroads' passenger services, combined all of its Chicago operations into Union Station in the early 70s. Amtrak took over CUSCo in 1984 and held it as a wholly-owned subsidiary until just last year, when it liquidated CUSCo and merged the subsidiary into itself.

CUS by the numbers

Measured by numbers of trains and passengers, Union Station is by far the largest of Chicago's four downtown train stations. CUS serves well over 300 trains per weekday carrying about 120,000 arriving and departing passengers. It is the nation's third busiest rail station after Penn Station and Grand Central in New York. It sees more travelers each day than Midway Airport; its level of passenger traffic would rank it among the twenty busiest U.S. airports.

CUS, with its Great Hall and baggage platforms, was built to serve the long distance intercity trains of an earlier era. Today most of its operations consist of Metra's commuter service. Of the more than 33 million arriving and departing passengers at the station each year, the great majority (91%) are Metra

commuters. Nevertheless, Amtrak's intercity service remains important.

Metra operates approximately 280 trains in and out of Union Station on any given weekday. These serve six commuter lines to/from the suburbs including: (from the north platforms) North Central, Milwaukee District North, Milwaukee District West; and (from the south platforms) BNSF, Southwest, and Heritage Corridor.

Amtrak has over 50 trains arriving and departing every weekday from Union Station. These include regional trains to Milwaukee (seven daily trains), St. Louis (four daily), Detroit (three daily), and several other Midwestern cities. These also include Amtrak's famous long-distance overnight trains such as Empire Builder, City of New Orleans and others departing once per day. CUS is the hub for almost all of Amtrak's long distance overnight trains.

Passenger levels at CUS have been increasing for decades. They are now, or will soon be, exceeding the design capacity of the 1991 renovation. More than 55,000 passengers boarded Metra trains every weekday at Union Station in 2016, up from 42,300 in 1991. Amtrak boardings and alightings have increased from 2.45 million per year in 2005 to almost 3.3 million per year in 2015.

The concourse is crowded with commuters during morning and afternoon rush hours, such that it is difficult to move against the rush hour flow. The tracks and platforms are busy with trains. Metra has been adding capacity by lengthening its trains. Now, however, there's little room left to add more passenger cars to trains or even to schedule more trains.

Great expectations

Recognizing that CUS's current configuration is limiting its future potential, the city and Amtrak have been planning. The Chicago Department of Transportation (CDOT) partnered with Amtrak, Metra and the Regional Transportation Authority (RTA) to produce the Union Station Master Plan in 2012.

This Master Plan looks to the year 2040 and beyond. It anticipates significant increases in demand for commuter and long distance train travel and it recommends ways to expand the station's capacity to meet this future demand.

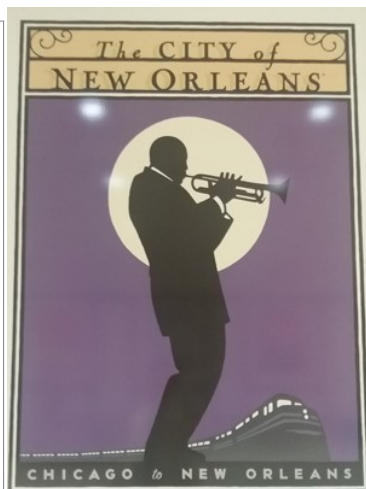
According to the Master Plan (2012), ridership on trains arriving and leaving Union Station is forecast to rise from 33.4 million to 51.4 million annually by 2040. That's a 54% increase. What's interesting is that intercity riders become a much larger part of the total share. Ridership on intercity trains (service currently provided by Amtrak) rises from 3 million annually to 9.5 million—a 217% increase—far greater than Metra's anticipated 27% increase. Thus, intercity passengers rise from just 9% of station users today to 19% by 2040.

A large part of the expected surge in intercity passengers comes from improvement of service, with greater speed and frequency of trains. The Master Plan assumes that, by 2040, intercity trains will operate at 110 mph on major routes of the Chicago Hub Network of routes (as designated by the U.S. DOT), which will significantly shorten travel times between cities. While most Amtrak trains currently run at 79 mph, the 110-mph trains will be competitive with auto travel to St. Louis, Detroit and other destinations.

Looking further out to the year 2060, the Master Plan foresees another large increase to 72.9 million annual passengers arriving and departing from Union Station. Again, the great part of this increase comes from intercity passengers, which rise from 9.5 to 26.6 million—a 180% increase. Metra passengers, meanwhile, increase by just 10% following long-term trends. Thus, intercity passengers are expected to account for 37% of station users by 2060.

This optimistic assumption for intercity train travel assumes that major routes are converted to state-of-the-art high speed rail with trains running at 220 mph. This requires the construction of a Midwest High Speed Rail system. A true HSR system would make trains to St. Louis, Detroit, Cleveland, Indianapolis,

Amtrak poster



Here's where the tracks cross Canal Street four blocks north of Union Station.

Cincinnati and the Twin Cities competitive with air travel. It's an expensive yet realistic system, discussed at length in Chapter 2.

The Master Plan shows that Amtrak and the City of Chicago have big expectations for Union Station. The station needs more capacity for the significant increases in Metra and intercity ridership of the past 30 years. Metra ridership will continue to grow at a moderate rate. Faster trains and, eventually, high-speed trains of the proposed Chicago Hub Network would further boost traffic. The station's tracks and platforms will need to accommodate more people and trains for all of this. Clearly, major changes are required to expand a train station that's already operating at capacity.

Concourse correction

Chicago Union Station is a unique two-sided terminal station, one of the few such train stations in the world. It is a double stub-end station with 10 tracks on the north concourse and 14 tracks on the south. There are, however, two pass-through tracks that were originally built to move mail and freight cars from one side to the other. These bypass the concourse on its eastern side along the Chicago River.

The Master Plan, if implemented, will keep the basic double stub-end layout in place for now. What is perhaps most interesting about its recommended improvements, however, is that they aim to restore the original functions of the headhouse and to recover much of what was lost when the concourse building was destroyed. The plan brings the two parts back into close working relationship. It helps to overcome the current feeling of separation of the headhouse and the basement concourse.

The Master Plan looks forward in three phases: short term, medium term and long term/visionary. The short term ideas focus on improving traffic flow on the streets around the station, especially busy Canal Street. Most of the ideas have been implemented, most notably the Union Station Transit Center, a \$41.5 million facility built by CDOT on the block just south of the



Amtrak map—all roads lead to CUS

Amtrak diagram of a reconfigured concourse



headhouse. Opened in 2016, it's a nice looking sheltered bus station that provides boarding for six CTA bus lines to/from Union Station via the new 'Loop Link' dedicated bus lanes on Madison and Washington streets. CDOT also built a nice pedestrian 'island' in the middle of Canal Street, which could someday have stairs leading straight down to the concourse level below.

The Master Plan's medium term ideas became 13 projects in what Amtrak now calls Phase 1. The plan estimates their total cost to be approximately \$200 million. Their intent is to improve the passenger experience and access to trains while adding capacity for even more passengers. These medium term improvements should give the station sufficient capacity to at least the year 2050, according to CDOT planners.

They will open up the east-west and north-south flows of movement within the station, thereby restoring the clear sightlines from headhouse to concourse that the station once had, at least to some degree. Amtrak has already begun this work by putting ticketing functions and passenger waiting areas back into the headhouse, where they were originally intended to be.

Phase 1 calls for making a nice lobby space at the Canal Street entrance to the concourse, pushing aside the bulky escalators to open the east-west flow of movement between the concourse and the Great Hall. It also calls for better vertical movement, opening new entrances along Canal and Jackson streets that lead straight down to the platforms and the trains. All of this should greatly ease movement in the concourse and improve access for daily commuters.

The plan goes to the guts of the station, to the train tracks themselves. It will take out the old luggage platforms between tracks in order to realign tracks and make wider, more spacious passenger platforms. And it will convert the old, unused mail platform that lay southeast of the south concourse's passenger platforms, running below the Old Post Office between Van Buren and Harrison Streets (the Post Office stopped moving mail by

train decades ago). This spacious 100' wide platform will be split into two passenger platforms, accessed by a renovated tunnel that comes out from the concourse's basement. These new platforms will be served by trains on at least one of the through tracks.

Phase 1 also looks to nearby Ogilvie (formerly North Western) Station just to the north at Canal and Madison streets. For a century and a half the two neighbor train stations have been kept apart. Phase 1 finally connects them, at least in a small way, by a pedestrian passage beneath Canal Street. It will also open a pedestrian passage south to the CTA's Blue Line, albeit through a long tunnel to the Clinton Street station several blocks to the south. It's a long-overdue attempt to replace the excellent connection that once existed to the West Side Elevated that went directly over the south platforms (demolished 1958). At least it will finally restore a much needed – although weak – link between city transit and the regional and national rail systems.

All of this is just to maintain acceptable levels of service for Union Station as passenger levels gradually rise. In mid-2016, Amtrak and partners (CDOT, Metra, RTA) announced that they were jointly funding a 'Phase 1a' study for design and preliminary (30%) engineering of the 13 medium term improvements. They secured \$7 million in federal, state and local funds and retained the Arup consultancy for this work. This initial phase wrapped up in 2018; when final design and construction will actually get underway is unclear. Funding for the \$200 million program is not secured.

Headhouse hopes

CUS currently operates at or near capacity during rush hour periods. The Master Plan's medium-term projects focus on the real throbbing heart of the complex, the concourse, platforms and tracks. A failure to implement them will mitigate the station's ability to sustain ridership growth. More, it will diminish its ability to spur economic development for years to come. But how to fund them?



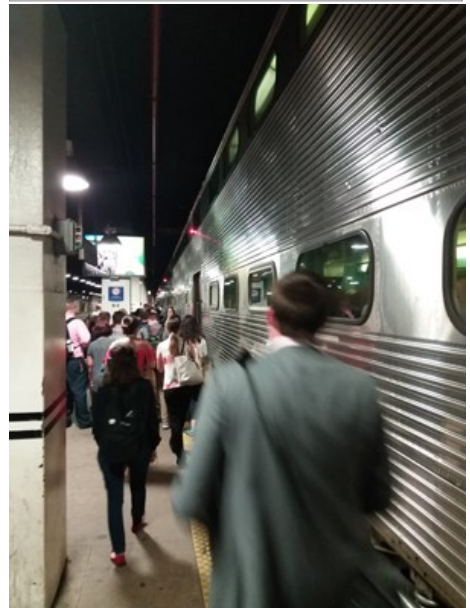
On the new
'pedestrian
island' on
Canal Street

Escalators at
the Canal Street
entrance will be
realigned...



opening the passageway from
headhouse to concourse.

Crowded platforms will be
widened.



This question compels a look across Canal Street to the still-intact historic headhouse. Good fortune fell upon this building in recent years as property values steadily rose west of the Loop. The old warehouse and factory district suffered through decades of disinvestment but about 30 years ago began to come to life. Its lower property tax base and the need of many downtown companies for new office space spurred mid-rise commercial and residential construction throughout the West Loop. Development was boosted by millions of dollars channeled to developers through the Canal-Congress TIF district, which was designated in 1998 (expires 2022).

Meanwhile Amtrak remained committed to CUS, finding \$115 million in federal funds for upgrades to the train yard and train control infrastructure. And, realizing that it has a gem on its hands, Amtrak also ponied up \$60 million, mostly its own money, for headhouse renovations. Work began in 2010 with new air conditioning, asbestos abatement and improved sprinkler systems. Amtrak proceeded to restore and revive the station's most famous elements: the great colonnaded entry along Canal Street, the grand staircases leading down to the Great Hall, and the magnificent skylight 115 feet above the stone floor.

The travertine stairs were, according to Amtrak, refurbished with stone from the same Italian quarry that provided the stone for them back in the 1920s. Now work is underway to renovate and protect the barrel-vaulted skylight, allowing soft, filtered light to infuse the marbled space. The skylight alone is a \$22 million project.

Amtrak is reopening long-shuttered entrances and closed-off, hidden sections of the massive building, making new lounges and waiting areas to welcome passengers into the Great Hall again. The Legacy Club, with a unique meeting room in the old barber shop, opened in 2015. The Metropolitan Lounge, a bi-level space for Amtrak's business class passengers, opened in 2017. The Burlington Room, a conference space adorned with the elegant murals of the former women's waiting room, opened in 2018. Amtrak is now trying to snag a tenant for the old Fred

Harvey lunchroom space, which is very large and could actually be split into several venues with a new entry from Clinton Street.

These spaces are restoring the intended purpose of the Great Hall as an impressive and comfortable passenger waiting area. And they're giving Amtrak nice rental facilities in the burgeoning West Loop. But Amtrak and the city have much higher ambitions. They're looking to develop Amtrak's underused property and stimulate development in the vicinity around the station.

They now have a Master Development Plan for the headhouse and the block south of it. It's a mixed use plan for hotel rooms and a high rise office tower. Presumably, this development will be linked to a value-capture scheme that channels funds toward the train station's medium term improvements. But how this occurs has yet to be seen.

Headhouse high-rise demise

Of the many remarkable features of Union Station, one of the most remarkable is that its headhouse is truncated. It's much shorter than originally intended. As designed in 1920 by the architecture firm Graham, Anderson, Probst & White, the building rose to 22 stories. CUSCo saw potential value in leasing the floors over the headhouse to help fund the station's development. However, zoning rules required such a tall tower to have setbacks, which were difficult to configure with the building's deep light well over the skylight. So, although it was given a sturdy base with additional caissons sunk to support a high tower, it was topped off at 8 floors with offices occupied by the railroads.

It has stayed that way ever since, although Amtrak has been trying to finish the job. The historian Fred Ash, author of the book *Chicago Union Station*, has counted no less than nine proposals to build a tower atop the headhouse, all foiled by the sheer complexity and time required for the project. The last one was felled by the '08 recession. Now Amtrak has its Chicago operations in the building; otherwise the office floors above the



Not tall enough?



headhouse are vacant. But the idea of building it higher was a key part of the Master Development Plan.

Amtrak selected a development team in May 2017 after a lengthy review of proposals. It is led by Riverside Investment & Development Company, well known for its development of the 150 North Riverside office tower, a new air-rights building between Lake and Randolph Streets. That work should have, hopefully, given the company an acute sensitivity to the unique requirements of passenger rail facilities.

The developer's initial plan, unveiled in mid-2018, showed a seven-story glass and metal cube plunked atop the headhouse. Needless to say it raised eyebrows. The Chicago Tribune's architecture writer called it 'a squat modernist box' on top of the neo-classical building, while another critic openly wished for the city's Landmarks Commission to kill it.

Public outcry had some positive effect as the metal cube disappeared from subsequent drawings, replaced by the nice rooftop deck with 'penthouse suites,' as presented at a public hearing in September of 2018. Indeed it appears that the idea of building a tower atop the headhouse has been finally laid to rest. But the old offices of its upper floors are to be converted into 400 hotel rooms. And new retail space will brighten the street level along Adams, Clinton and Jackson streets. A very tall office tower will rise on the block south of the headhouse, replacing Amtrak's old parking garage. The newly built bus transit center, on the north portion of that block along Jackson, will be left intact.

At a public hearing in June of 2018, it was stated that the project would generate \$21 million in annual real estate taxes, \$3.5 million in annual hotel taxes, and \$2 million in annual sales taxes. The real estate tax estimate was reduced to \$19.5 million in September. So it appears that the developer, and the city, made a significant concession in reducing the scope of the headhouse development. Amtrak, according to the developer, suffered no reduction in its 99-year lease on the property. But

nobody at the hearings said where the property tax revenue would go.

Moving the money

In 2016, the State of Illinois passed legislation enabling the City of Chicago to fund four critical transit projects by using Transit Facility Improvement Area (TFIA) financing. It is a value-capture mechanism much like the well-known, rather notorious TIF districts that now blanket large areas of the city. But a TFIA is project-specific, meant to finance transit needs with tax dollars generated by rising values on properties near train tracks. And unlike a typical TIF, its property tax base is frozen for 35 years (not 23 years), and will not deprive public schools of levies on increased property values within the area. The rest of the new tax money generated will be split 80 percent for the transit project and 20 percent for other taxing bodies.

The authorized TFIAs— commonly referred to as ‘Transit TIFs’— are for the following:

The CTA’s Red and Purple Line modernization;

The CTA’s Red Line extension to 130th Street;

The CTA’s Blue Line modernization;

The Union Station renovation and transportation improvements.

So far, just the Transit TIF for the \$2.1 billion Red and Purple Line modernization has been approved by City Council and put in place. It runs a mile-wide swath along the tracks from North Avenue all the way up to Devon. With the expected tax increment from this, the city has been able to leverage approximately \$1.6 billion in federal grants and low interest loans.

CUS should benefit enormously from a Transit TIF. Apparently, Amtrak does not pay property taxes on station related real estate, though it does pay taxes on land leased to air rights (CUSCo did pay taxes when it was railroad owned). Therefore

any new development should rapidly create an increment. This should let the city actually subsidize Union Station's redevelopment up front, with the assurance that it will be paid back by future tax payments in the TFIA.

Civic groups that supported the TFIA law pointed out that similar approaches have worked well in cities such as Denver, which financed its new Union Station with tax increment from a special transit area. The local value capture became the basis for Denver to win millions of federal dollars through Transportation Infrastructure Finance and Innovation Act (TIFIA) loans and Railroad Rehabilitation and Improvement Financing (RRIF) loans. The example is certainly auspicious for Chicago, where the promised \$19.5 million in annual real estate taxes will become a decades-long revenue stream to leverage hundreds of millions for the train station's redevelopment.

The same civic groups that backed TFIA have also expressed great enthusiasm for the idea of turning CUS into a 'place' (in the lingo of planners) or a 'destination' (in the lingo of realtors) in the West Loop. No doubt the developer, and Amtrak for that matter, would be very pleased to see CUS become a popular place that's a fun new destination in Chicago. But it's really not the point of the whole effort; Chicago already has a lot of popular places.

The point is that CUS is a train station that's vitally important to the city's and the region's transportation system. And it will become even more so in the future. Therefore everything should be done to fund its ongoing redevelopment and nothing should be allowed to block it. The promised revenue, a windfall of the West Loop's fortuitous rebirth, must be captured for the train station.

What is Amtrak up to?

Last year, without seeking regulatory approval, Amtrak suddenly dissolved CUSCo and merged CUS into itself. This rather imperious move caused quite a fluster at Metra, which

complained to the relevant regulatory body, the U.S. Surface Transportation Board (STB). Metra claimed that the STB should retain some oversight over CUS, lest Amtrak use its total control to force unfavorable terms upon its tenant (Metra). This past spring the STB stated that Metra has some justifiable concerns and cautioned Amtrak to tread carefully. There the matter rests for now.

Amtrak will remain a key investor, together with the City of Chicago, in Union Station. Therefore its interests and intentions must be understood. Metra also has a huge stake in the station's future, not so much as an investor but as a tenant. So Metra focused on what affects its negotiations with Amtrak in the CUSCo flap, which garnered all the press attention (Metra obviously having a pretty effective press office).

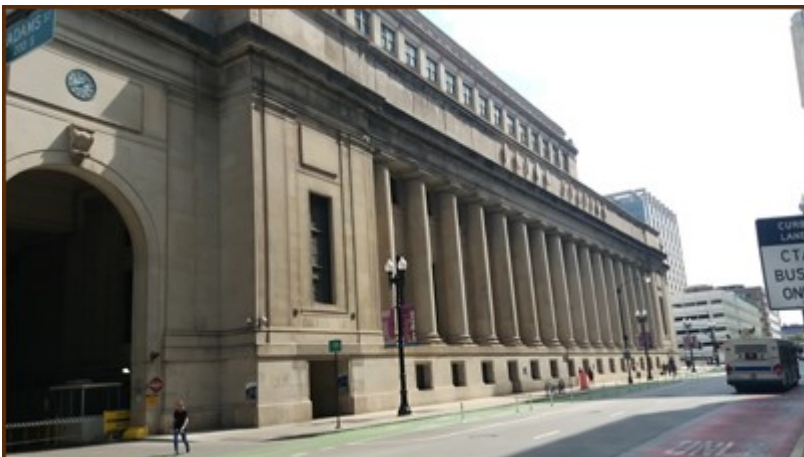
But it's likely that Amtrak had several motives for dissolving CUSCo. For one, CUSCo was an Illinois for-profit corporation. It always had cash coming in from air-rights and concessions but it generally operated near break-even. The new hotel and office developments, under 99-year leases, would create much larger revenue streams, causing CUSCo to face the prospect of having to pay state and federal corporate income taxes. This has been avoided. Also, Amtrak has streamlined its organizational structure in Chicago, which should help it to manage a very complex real estate redevelopment plan.

Of course now that CUSCo is gone, Amtrak will not need to segregate funds and is freer to channel income from Chicago into its operations elsewhere. The city cannot really stop this, although it could potentially use its political clout to compel Amtrak to retain earnings in Chicago as part of a deal for public funding. For now, it appears that Amtrak is continuing to invest significant capital dollars in Union Station, which is a net gain for the city. Indeed, no matter how Amtrak decides to allocate its earnings from the development deal, there should be significant tax revenue from the development to leverage funding for Phase 1.



Public hearing in the newly renovated Burlington Room, summer 2018

Along Clinton Street—can CUS become a place?



From millions to billions

However the politics play out, it appears that Amtrak and the City of Chicago have a shared interest in getting the \$200 million program of medium term Phase 1 projects funded and built. They're slowly making progress without financial assistance from the State of Illinois which is broke. That is probably a precedent for the future.

For now, what's critical is to put a Transit TIF into place at Union Station and get development going there. The 2-block area stands to generate an enormous amount of tax revenue earmarked for CUS. This, together with some Amtrak contribution, should provide the required match for federal funds and then some. The city and relevant agencies won't announce anything until a deal is in hand, but they need to be watched carefully.

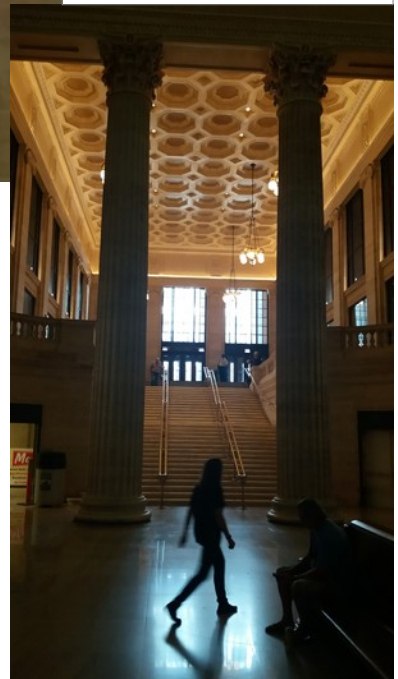
In addition to the Master Plan's medium term projects are its long term or 'visionary' projects. These go well beyond what's required to outfit Union Station for another 20 to 30 years. They make CUS the centerpiece of a transformative transportation system, one that powers the future economy of the Chicago metropolitan area and the whole Midwest. Such transformation will require billions of dollars to develop high speed rail and an innovative regional scheme called Crossrail. This long-range perspective on what Union Station should become is the subject of Chapter 2.



Adams Street entrance to the basement concourse



The Great Hall's skylight under repair, summer 2018





Chapter 2 Union Station Transformation: becoming a nexus of high speed intercity and high frequency regional rail

This is the second of three chapters. The first focused on Union Station and its Master Plan. It considered how to fund this important plan to bring the station to an acceptable standard of service for years to come. As it is, Union Station is barely able to handle current passenger levels and has little room to accommodate expected increases in trains and passengers in the coming years.

Union Station's current capacity is approximately 35-40 million passengers per year. The Master Plan, issued in 2012, was followed by modeling and analysis of pedestrian flow and train operations at the station, in studies led by Amtrak and by the Chicago Department of Transportation (CDOT).

Their analyses found that fully building the Master Plan's improvements – its 13 'medium term' projects that Amtrak calls 'Phase 1' – would increase the station's capacity to approximately 60 million passengers annually. It's a big increase

to accommodate what's anticipated to be a significant growth in train ridership and operations. Given current and expected growth rates in the plan, Phase 1 will give the station sufficient capacity for at least another 30 years to 2050.

The Master Plan takes for granted that the expansion in train operations and ridership growth will occur on the Chicago region's existing system; a system composed of Metra commuter and Amtrak intercity service. But what if we were to change the system? What if we enhanced it with higher levels of service that fostered and accommodated yet higher levels of demand for train travel, beyond what the Master Plan's medium term foresees?

That is what this chapter is about. It looks at ways to expand capacity and demand for rail travel in Chicagoland and throughout the Midwest. It proposes new systems that would increase ridership significantly, filling Union Station's added capacity sooner than anticipated. And it assumes that this would be a good problem.

In fact, the Master Plan considers longer term projects to increase the station's capacity even more. According to the plan, ridership on trains arriving and leaving Union Station is forecast to rise to 51.4 million annually by 2040. Looking further out to the year 2060, the Master Plan foresees a large increase to 72.9 million arriving and departing passengers annually. The great part of this increase comes from intercity passengers, which increase by 64% (from 2040 to '60) to 26.6 million. These large increases come from implementing higher speed trains running at 110 mph on the Chicago Hub network by 2040, and actual high speed rail with trains running at 220 mph by 2060.

This essay takes up this possibility and adds to it. It looks three core ideas to greatly expand passenger rail's capacity. They are: regional express rail; through-routing at Union Station; and, a Midwest High Speed Rail (HSR) network with its hub in Chicago and service through Union Station. It looks at these three initiatives together, considering them as parts to be combined

into a whole unified system. If planned carefully and built well the effects will be transformative.

The three initiatives – ambitious but feasible – will require making Union Station into a highly integrated hub, one offering an array of transit services to numerous populations seeking local, regional, national and international destinations. Taken together, they will require remaking Union Station into a rail station ready to serve a great global city of the 21st Century.

The sections below discuss each of the main initiatives in turn.

Regional Express Rail

The Chicago region's rail system is old; it is a legacy of the 19th Century. And it pretty much still works as it has for over a century. Trains come in and go out again in all directions to north, south, west and east around the Lake. The tracks all lead to the downtown train stations, of which there are four today (there were several more in the past). These are terminal stations, in which arriving passengers go out again on the same route or switch trains to go out in a different direction from which they came. It is a huge 'hub and spoke' system, so to speak.

One major change that has occurred should be noted here. When Union Station first opened in the mid-1920s, the greater part of its traffic was intercity, with four great railroads carrying passengers to all parts of the country. Since then, as is well known, intercity rail travel has declined, being largely replaced with air and auto travel. So today only about 11% of Union Station's passengers board intercity trains. All the rest ride Metra's commuter service from/to the suburbs.

Yet all of Amtrak's long distance, overnight routes originate at Union Station. So for Amtrak, as for the famous passenger railroads that preceded it, it's still very much true that all roads lead to Chicago. But the same is true of Metra's commuter service, as all of Metra's trains come in to the four downtown stations and leave out again. All originations or final destinations are downtown.

It's been like this for a long time and the design of the regional rail system shows it. It is essentially set up for commuter traffic; the great bulk of Metra's passengers are suburbanites working downtown. So, on most of Metra's routes, one sees a lot of parking lots around the local stations where commuters can park all day. And the train schedules reflect this, with frequent trains at rush hours to serve commuters, lessening to hourly or even less frequent service from mid-morning to mid-afternoon and again in the evenings.

It's been like this for a long time and Metra does an excellent job of providing this service with precise timing of trains. Of course the suburbs and suburban employment have grown, leading to the rise of 'reverse commuting' from the central city outward. And Metra serves some leisure traffic evenings and weekends. But the train schedules and stations show that the bulk of its business remains the downtown commuter traffic.

RER

Regional express rail, known as *réseau express régional* or 'regional express network' in France, has proven very successful in metropolitan areas of France, Germany and other countries of Europe as well as Japan, which have renovated legacy rail systems to greatly enhance their capabilities. It has not yet been implemented in the Americas. Chicago should be the first.

RER builds on the best elements of a legacy rail system, tying them together more closely, getting them to work together more effectively with the placement of a few key pieces of infrastructure. It opens many new possibilities for transit service that greatly enhance the capacity of the entire system.

It is regional, connecting cities and suburbs, running on tracks often shared with commuter trains, but it is different from a typical commuter train. It is like a city subway or metro, with frequent service, all trains making all stops, such that passengers come to ride continuously rather than wait for scheduled service. But it generally runs faster with fewer stops

than a city metro. Its stops may be closely spaced like a metro or further apart, allowing express service through city centers where it stops just at major stations and key points. It is often through-routed, not terminating at a train station but continuing through to the other side of town.

The key is frequency. The trains have to run consistently at regular intervals throughout the day, from early morning to midnight. Only this consistent and frequent service will generate a high volume of passengers, who will rely on its quickness and convenience. In some cases the trains come as frequently as every 3-5 minutes, although longer intervals are feasible. The Chicago region should plan for 15-minute intervals, perhaps 20-30 minute intervals but not longer in some areas to get started.

To add to its effectiveness and continue building capacity, the trains must be closely coordinated with the rest of the regional transit system. They often share tracks with commuter trains, allowing local and express service on the same lines. They should be carefully timed with local and regional busses, to arrive at stations approximately together for passengers to change services without long waits.

It should be noted that such a system will require investment in new trains. An RER train will need to be lighter and accelerate faster than the big, heavy diesel locomotives currently running on most of Metra's lines. It must be ready to make a lot of quick stops and starts. So it should be light, compact and self-propelled, powering itself with electricity from overhead wire or generated from hydrogen or diesel fuel. There are excellent examples of such trains in use on many systems worldwide.

This frequent and coordinated service will build a large population of users who find it equal to or superior in cost and convenience to their cars. And it will prove of enormous importance to many millions of people who do not have a car. It will be a commuter service and much more, taking people where they want to go, when they want to go, for an infinite number of purposes across the metropolitan region.

Such a system gains more users as it grows. It creates positive ‘network effects,’ boosting ridership as more and more segments are added to the system. With each new addition to the system, the possibilities of where people can go and the connections they can make are multiplied. As the network expands, riders will find numerous new ways to use it. Then the capacity of the entire system is continually enhanced.

Getting started with RER south

So, how to begin? The task of transforming a large metropolitan region’s transit system may look daunting. But it doesn’t have to be. We simply move forward one step at a time, building it up piece by piece. Because the good news is that it doesn’t need to be built all at once; it can be built up segment by segment and added to over time. Then positive network effects will ensure increasing benefits for more and more people as the system gradually grows.

But we need to start somewhere, with those transit lines most ready for conversion to RER now. Looking at Metra’s system of main lines – the fan of diagonals radiating outward from the central city – shows many opportunities for RER, with some lines having more significant challenges than others.

There are some key factors to consider when selecting the initial lines to work on. Mainlines with no freight trains should be taken advantage of. Population densities in the neighborhoods and village centers on the lines should be considered. And destinations served, such as major airports, large centers of employment and other key destinations are of importance.

A line that appears well suited to be ‘stage 1’ in an RER system is the Metra Electric south service from Millennium (Randolph Street) Station to University Park, with branches to Blue Island and to South Chicago. It is powered by overhead wire and fully committed to commuter service, not sharing the tracks with freight trains. Indeed, as a mainline with no freight, it was actually intended to provide high frequency service to South Side

communities when it was built by the Illinois Central Railroad a century ago. Its wide right-of-way with four tracks allows local service to run on the inner tracks, served by stations with high platforms level to the trains' doors for quick and easy boarding. Meanwhile, express trains on the outer tracks can run longer distances at high speed without stopping. So the system supports both local and long distance express service together at once, with stations spaced close together across the city's South Side.

A Metra Electric enhanced to RER levels of service can remarkably expand transit service in South Side and near south suburban communities, which are much in need of improved connections to the rest of the region. The Electric links far south communities to a major university in Hyde Park, the McCormick Convention Center and downtown Chicago. With 15-minute frequencies, it would open untapped markets with new possibilities for travel at stations along three lines including those at 93rd Street (South Chicago), 95th Street, 111th Street (Pullman), 115th Street (Kensington), and Blue Island. It might continue at lower frequency in the suburbs, although places with significant town centers such as Homewood and Flossmoor may demand higher, while towns such as Harvey could see a resurgence.

A companion to Metra Electric RER is the Rock Island (RI) line from LaSalle Street Station to Joliet. The RI parallels the Metra Electric to the west and southwest. They touch in Blue Island where an Electric branch ends, while the RI continues on to Joliet. Like the Electric, the RI has many closely spaced stations through the South Side, making it a good candidate for RER if appropriate trainsets are used. It could offer both high frequency local and suburban express service, such that all trains from Joliet would run downtown express after the Blue Island station, where passengers might make a cross-platform transfer to the local service.

Service that is more like RER might be implemented on these lines soon, as Cook County is now leading talks among the region's three transit service providers: Metra, CTA and Pace.

Their objective is to provide South Side neighborhoods with higher frequency service and better regional connections. While the current planning may not be for 15-minute service, it would be more frequent than now when trains run infrequently during off-peak periods. And it will lower costs for city riders, with fares matching those of the CTA's trains and busses. Another important feature of the new service would be free transfers, such that riders could use the same fare card across busses and trains of the three services (CTA, Metra, Pace).

Cook County appears ready to provide a financial subsidy to offset Metra's potential losses and ensure the new service gets going. An initial study sponsored by the county predicts it will significantly increase ridership on these Metra lines that have had declining ridership for years. It should increase revenues for all three service providers.

Interestingly, the new service, should it be successful, could lessen the need for a very expensive extension of the CTA's Red Line to 130th Street near the city's southern limit. The proposed Red Line extension, for which planning is underway, would provide just four additional stops. A Metra Electric/RI solution would be faster to implement and less costly while serving more people at many more stops in the city and suburbs. If properly coordinated with CTA and Pace busses, it can become the main artery of a greatly improved network of transit services reaching far across the South Side and near south suburbs.

Building the network north and northwest

Continuing to build an RER system, the next segment to add should probably be Metra's Union Pacific North (UP-N), which originates at Ogilvie (formerly North Western) Station downtown. This line parallels the CTA's Red Line through the city's north side then continues through north shore suburbs all the way to Kenosha, Wisconsin. It has two stops in densely populated Evanston, while further north almost every stop is located in a village center. And, with no freight trains on the line, the lighter, faster RER trains running every 15 minutes would serve much

local traffic along the line, which is currently not being served by the commuter trains. Its capacity would be further enhanced if more city stops served by feeder busses were added, perhaps at Peterson and Addison Avenues.

Complementing RER service to the north is service to the northwest. The next segment that makes sense is the Union Pacific Northwest (UP-NW), which originates at Ogilvie Station with service through the city's dense northwest side and northwest suburbs to towns in McHenry County. Another is the Milwaukee District West to Elgin (MD-W – the former Milwaukee Road owned by Metra), originating at Union Station. These lines will have significant markets, with the MD-W having to share tracks with a lot of freight traffic but offering critical access to O'Hare Airport.

The many other lines in Metra's system offer opportunities for RER but with more significant challenges, such that long term planning will be required for them. The BNSF Railway, which originates at Union Station and travels through dense parts of Cook and DuPage counties to/from Aurora, offers a very large market for improved transit service but has to share tracks with a lot of freight trains. Other corridors through city and suburbs go through less populated areas on tracks often heavy with freight traffic. Such would be the case for the North Central Service (NCS) and the Milwaukee District North (MD-N) lines, which originate at Union Station. The Southwest Service (SWS), from Union Station to Orland Park and Manhattan in Will County, which will soon be routed by a new connection into LaSalle Street Station, has no freight traffic but the corridor lacks high population density along its length.

Connecting north and south

Looking again at Metra's regional system, it appears that the best opportunities to get started lay to the south, north and northwest. The extent of the new system, the periphery to which the 15-minute frequency service would extend, might look like the following: on the UP-N, certainly to Wilmette and perhaps as

far as Waukegan; on the UP-NW, to Desplaines or Arlington Heights and perhaps as far as Barrington; on the MD-W, certainly to the airport (via the NCS or otherwise) and perhaps further into west Cook County; on the Electric and RI lines, certainly to Blue Island and perhaps as far as University Park and Flossmoor.

Now to make this system very powerful would be to connect it. It would give South Siders much faster and affordable access to the job-rich north and northwest areas. It would create quick, convenient and uninterrupted transit links from north, northwest and south to the region's key destinations including downtown Chicago, the McCormick Convention Center, and O'Hare Airport. It would offer a unified solution to longstanding regional needs that have not been solved as separate projects: improved South Side transit service and express service to the airport.

Linking RER lines will create a strong central spine of connectivity through the metropolitan region that greatly extends positive network effects. In such a system Union Station becomes a vital point. It is here where the through-routing should occur to connect the lines. There are a few ways of doing this, to be discussed in detail in the section below. Briefly noted here is that it would be possible to connect the UP-N and UP-NW to the Metra Electric by tunnel under Clinton or Canal Streets, one running adjacent to both Union and Ogilvie Stations. The two UP lines combine near the Clybourn station en route to Ogilvie Station. Just north of Chicago Avenue, the old line (which led to the old North Western Station on Kinzie Street) turns off; trains following this route beneath Chicago Avenue could be given entrance into the proposed tunnel below Clinton or Canal Streets.

The remarkable connectivity promised by RER makes it a major infrastructure project that is well worthy of consideration, one that should be compared to any other major transit projects competing for limited funds. It's fast and frequent service lets folks in inner city and suburbs get downtown (and many other places) more easily, while folks in outer suburbs get downtown faster. And its ability to greatly increase transit capacity in the

city and inner suburbs will let Metra go after a market it has but has not exploited – people who want to live "car-free" in walkable neighborhoods. With north and south lines meeting at Union Station, it will create a powerful new spine of connectivity through the metropolitan region.

Crossrail

It was stated in Chapter 1 that Union Station is unique as a double stub-end terminal station with 10 tracks on its north platforms and 14 tracks on its south. There are, however, two little noted cross-through tracks on the station's east edge between the concourse and the river wall. These through tracks were put in to move mail and freight cars from one side to the other. Amtrak still uses them to move rail cars and to originate north and westbound trains from the south concourse during occasional track outages.

Chapter 1 also made mention of the fact that there is a spacious 100' wide platform that lay unused directly beneath the old post office building and part of the new post office. It's very long stretching from Van Buren Street to below Harrison Street. The Master Plan calls for activating this former mail platform as part of the plan's medium term (Phase 1) projects. To give passengers access to it, the plan calls for renovating a tunnel that comes out from the concourse's basement.

The Master Plan calls for putting both of these mostly forgotten elements of Union Station into more intensive use. To do this, it will extend two tracks at the base of the wide mail platform, splitting it into 'east' and 'west' platforms, each served by tracks on both sides. The new west platform's tracks will connect to the through tracks in Phase 1, while the east platform's tracks will be extended to the through tracks in a later phase. Thus, in Phase 1, the Master Plan foresees the through tracks being fully served by a spacious platform accessed from the concourse.

This will open excellent opportunities to expand Union Station's capacity. It will add platforms on the south concourse, opening

up more space for Metra's commuter operations. More, it will open the way for through service – local and intercity – to meet important regional objectives in new ways. These include regional express rail (RER), express service to O'Hare Airport and other major destinations, and improved mobility for South Side residents.

Through routing

Through-routing at Union Station will create a trunk line at the core of the city and region, completing the emerging RER system. It will finally make the long sought connection from south to north and northwest – from Blue Island to O'Hare Airport and points beyond – with a single seat ride on a comfortable express train.

It takes the first stage, the Metra Electric, which is already designed and built for RER service, and links this to the Milwaukee District lines out of Union Station. It draws together the initial RER segments serving the south, north and northwest sectors of the city and region.

Getting the Electric, which originates at Randolph Street, over to Union Station is a big infrastructure project. It is feasible but costly; although not more costly than other major works of infrastructure that are underway or proposed for the region's rail system. That the project links two key railroad lines that are already largely under public ownership is also helpful.

It will require infrastructure upgrades and new infrastructure at key points along the entire route. And it will require electrification of service along the entire way, probably with overhead wire that already powers the Metra Electric. This will support the lighter, faster accelerating RER trains and high speed express trains while accommodating normal suburban commuter trains as well.

Key elements from south to north, which together form the entire project, are listed here.

- Upgrade the Metra Electric to a world class standard for shared use of RER, commuter and high speed trains.
- Build a 16th Street connector by rebuilding the 'St. Charles Air Line' for electric trains with a new flyover and ramp to the yard south of Union Station where the trains will find the lead tracks to the south concourse.
- Upgrade the 2 through tracks at Union Station, outfitting these for electric trains.
- Build new flyovers at A-2 and A-5 junctions and 13 grade separated highway crossings from Harlem Avenue to Belmont Avenue in Franklin Park.
- Relocate Metra's depot at O'Hare to a location adjacent to the new car rental facility (recently constructed), building here a multi-model transit center where train passengers may connect with busses and the airport's transit train.

In addition to these key pieces of infrastructure and infrastructure upgrades, Crossrail will require a few innovations to achieve its maximum potential. One is level boarding with high platforms level to train floors, such as currently exists on the Electric line, to allow universal access and quick boarding. Another important feature, noted above, will be fare integration among the transit service providers (CTA, Metra, Pace bus) with convenient electronic 'tap-on/tap-off' fare collectors. Also noted above, close timing with busses will be needed to make Crossrail the high volume spine of a regionwide transit network.

A seamless backbone of regional rail service

Crossrail will create a continuous passenger route through Chicago and Cook County; indeed it will become a trunk line at the core of an integrated rail network serving the entire Midwest. Throughout the Midwest, the most important destinations are downtown Chicago and O'Hare, mostly reached by auto and airplane. Crossrail's route through the region will become of equal importance to the expressways. Indeed, the Dan Ryan,

Eisenhower and Kennedy Expressways are the most congested urban expressways in the Midwest. Crossrail should prove to be the most cost-effective way to add capacity in these corridors. And, as the hub of an eventual Midwest HSR network, it will complement air travel.

It is a large project that cannot be completed quickly. But it can get started quickly and be built up in segments as funds become available. Then its value will continue to grow as new services are added to the line. With each new segment added, and with through routing at Union Station, countless new trip combinations will be created, encouraging more people to take trains.

It is important that the whole system – city, metro region and the Midwest – be planned together so that planners and the public see how it all fits together. Then, as segments and services are added, the place of each within the whole may be understood. And each part will be seen to support the compelling logic of the whole.

The main trunk line, reaching from the south suburbs to O'Hare, will need four tracks for much of its length. This capacious 4-track width will support multiple levels of service, which will be needed to provide numerous interconnected transit services that together maximize the system's capacity.

Crossrail's levels of service include:

- Regional express rail, with trains running every 15 minutes all day, operating through Union Station, with fares comparable to CTA service.
- Suburban commuter service, including Metra and South Shore Railroad, with trains running every 30 to 60 minutes, skipping most in-city stops to provide suburban express service and terminating downtown, with medium fares.
- Airport express service, with trains running every 15-30 minutes, limited stops at key points including Union Station to/from the airport, with higher fares than normal commuter service.

- Intercity and HSR trains, with varied schedules and limited stops at key points, some operating through Union Station to the airport and others timed to connect with express trains, with higher fares.

The RER, Airport Express and HSR trains will run on tracks separate from the suburban commuter and freight trains. This will require building two new tracks north of Union Station (from A5) to the airport. The two new tracks will support RER, Airport Express and HSR, while suburban commuter and freight will operate on two tracks adjacent to these.

The RER will make frequent stops (every 15 minutes) at stations spaced every few blocks from Harvey to Hyde Park (along the Metra Electric line), and approximately every 1/2 to 1 mile from 55th Street onward (on the Electric, the 16th Street connector, the MD-W and the NCS), including the convention center, Union Station and the airport. The branches to Blue Island and South Chicago will also serve closely spaced stations at close intervals, providing fast, frequent and meaningful service to communities across the South Side and south suburbs.

Meanwhile, commuter trains from the outer suburbs will be going by, bringing commuters downtown by express service.

Therefore, with Crossrail, folks in the inner city and suburbs will get to many places more easily while folks in outer suburbs will get downtown faster. The same advantages will be enjoyed by people coming from Indiana on the South Shore, which joins the line at Kensington/115th Street.

RER and commuter service will run parallel and stop together at a few key places where the commuter trains make stops, allowing transfer from one to the other. These would likely be Kensington/115th Street, 95th Street (Chicago State Univ), 55th Street (Hyde Park/Univ of Chicago), McCormick Convention Center, Union Station, River Grove and O'Hare. The commuter trains' limited stops at just these points, and RER's fast and frequent service to/from them, will allow passengers on each service to time their connections closely for efficient transfers.

Crossrail's combined services will greatly expand mass transit's capacity in the Chicago region, opening new markets that Metra, Pace and the CTA have not yet cultivated. It will offer South Side and south suburban residents a high frequency service that connects directly to the convention center, downtown, the airport and other important employment centers. It will make quick connections to commuter trains going south, north and northwest, opening new access to job-rich areas of the region. Moreover, with fast and frequent service to all communities along the way, it will build connections among neighborhoods and foster transit to and from communities all along the route. And, with the eventual addition of HSR to the line, it will connect these communities to the whole Midwest, and the whole region to them.

Planning for it now, building it piece by piece

Crossrail facilitates long-sought objectives of metropolitan Chicago. It fulfills the city's often manifested desire for express rail service to O'Hare, giving Chicago the kind of express airport service that is nowadays expected of elite global cities. At the same time, it offers an important contribution to overcoming the jobs and housing mismatch that has beset the metropolitan region for decades, with combined RER and commuter service opening access to the jobs-rich suburbs along the I-90 corridor and elsewhere.

The beauty of Crossrail is that it joins these important initiatives into a unified planning process. Currently, better South Side service is taking the form of a long-discussed Red Line extension from 95th Street to 130th Street, while O'Hare express has been subjected to a scheme for unproven technology by a celebrity entrepreneur. But the city and transit agencies are looking at these as distinct projects serving different needs and people. Hence they are planning for them separately, as if they were projects in silos.

Crossrail breaks down the silos. It sees these projects as intimately related and brings them together. It makes Union

Station the centerpiece of highly unified system. It brings communities across the Chicago region to one planning table, talking about proven transit technologies. O'Hare express, and improved South Side service, are joined into one initiative when the passage through Union Station is opened. And, when the entire route is electrified for high frequency service, a multitude of new travel options will open for everybody. South Siders will get to job-rich parts of the region much more quickly and easily, even while suburbanites gain better access to the city and the entire region.

When the Crossrail plan is in place, the pieces can be assembled, some of them fairly quickly. The first step is to upgrade the Metra Electric to a world class standard for RER and begin operating this service in South Side and south suburban communities. The next is to work on through routing at Union Station, beginning with the current Master Plan that already calls for through tracks served by a new platform. No major surgery will be required at Union Station, although the 16th Street connector, new tracks and track electrification to O'Hare are big ticket projects.

These projects will complete a central core, a high-volume spine allowing the transit agencies to operate frequent crosstown service, with airport express trains and a one seat ride between O'Hare, Union Station, the McCormick Convention Center, Hyde Park and points south. See it as a high-capacity trunk line, a backbone to which individual projects can be added on.

A next step would be to strengthen the linkages from South Side and south suburbs to the west and northwest suburbs with connections to commuter trains at Kensington/115th Street, Union Station, River Grove and other key transfer points. It will require careful timing of express bus service at these points. This effort will also support suburb-to-city commuting (the so-called 'reverse commuting') and open more paths for suburbanites to reach O'Hare to access national and international destinations. It will bring the volume of transit users needed to create a true transit hub at O'Hare.

The crowning piece will come when Crossrail becomes the nexus of high speed rail, making Chicago the hub of a Midwest HSR system serving eight major cities. Before HSR is built, Crossrail will serve Amtrak intercity trains to and through Union Station.

A Hub for High Speed Rail

Building a blended network in phases

Throughout the Midwest, two of the most important destinations are downtown Chicago and O'Hare Airport. This makes Crossrail the centerpiece of a Midwest network of high speed rail, where fast trains from several major cities will converge on rails equipped for electric trains.

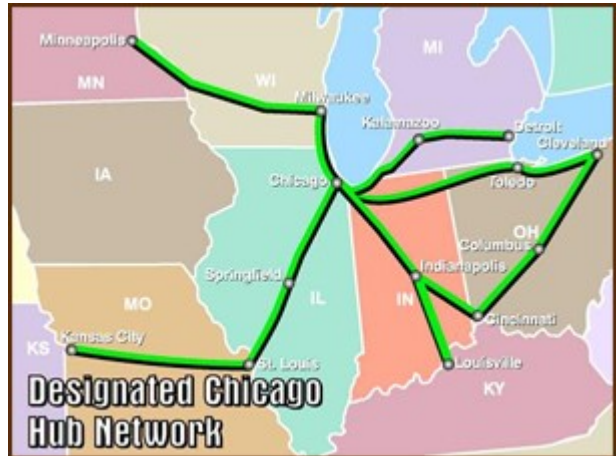
True HSR at 220-mph annihilates time and space, putting major cities much closer together. But HSR trains need not run at top speed all the way; HSR can run effectively over diverse segments of track that permit different top speeds. HSR trains running at 220-mph require specialized, completely grade-separate track, while the same trains running at 125-mph can use conventional track that is upgraded to accommodate HSR trains. 125 MPH is a break point, above which the system competes effectively with air travel.

High speed corridors in many countries are blends of track types with varying speed capacities. They run at top speed (up to 220-mph) for long lengths on dedicated track, but the top speed segments are linked to lower speed segments that allow the service to reach much further. So long as the average is at 125-mph or faster, these corridors will compete with planes in regional markets. They will move many people to many places quickly. Such is the case in France, where a radiating network of HSR corridors centers on Paris.

A Midwest network centered on Chicago would not be dissimilar. In fact, planning for such a network goes back to the 1990s, when the concept of a 'Chicago Hub Network' of corridors was produced by the US Department of Transportation. This hub

network has HSR corridors linking Chicago to St. Louis, Indianapolis, Detroit, Milwaukee and the Twin Cities, with further links to Kansas City, Cincinnati and Cleveland. It also anticipates a strong connection to an emerging Canadian HSR system with direct links to Toronto.

Planning for the Chicago Hub Network has anticipated a gradual build-up to high speed. Plans are now in place to raise the top speed for passenger trains from the current 79 MPH to 110 MPH on main routes, making a dramatic reduction in trip times between major cities. Travel



USDOT

time between the Twin Cities and Chicago would drop from 8 to 5½ hours, and between Cincinnati and Chicago from 8 to just 4 hours, literally cut in half with trains running for long lengths at 110 MPH. With higher speed combined with increased frequency of service, the number of train passengers on main routes is forecast to greatly rise.

The so-called 'higher speed' 110-mph service is quite feasible, using diesel engine trains on conventional track shared with freight trains. It requires upgrading track and improving signals, switching and at-grade crossings. Much of this work has been completed on Amtrak's Chicago to St. Louis route, with financing from the 2009 'Stimulus Act' and other sources. Trains will run at 110 MPH for a good length on this route, reducing travel time to 4½ hours. Implementation of this service is expected to greatly increase passenger numbers, although it has been stalled due to regulatory hold-ups.

For now the 'higher speed' 110-mph service is being installed along different sections of the hub network, albeit at a snail's

pace. When finished, it will greatly improve train travel in the Midwest and make it appeal to many more people. Intercity passenger volumes at Union Station will consequently grow, as foreseen by the Master Plan.

The gains made by implementing the 110-mph service can be greatly enhanced with high speed trains running at twice the speed. As noted above, world class 220-mph HSR such as the famous French TGV (train à grande vitesse) requires electric trains running on a dedicated, completely grade separated track. If this type of service were to be installed over parts of the Chicago Hub Network, it would lower travel times to 2-3 hours between the major cities and greatly increase passenger levels (see references to studies, below). It would be a real game changer, putting trains in position to compete with air travel while opening vast new opportunities for urban and rural economic development. It would basically change the way transportation works in the Midwest.

It is visionary but feasible, as the Union Station Master Plan recognizes. It does not need to be built as one complete system in whole piece all at once. It can be built in stages, with trainsets able to run on both dedicated HSR and conventional track. This is how the systems in Europe and Japan have been and continue to be built. It is how California is building its system now. While estimates have put the cost of such a Midwest system at \$65 billion, it is not a price that would need to be paid all at once. The system can be implemented gradually, with only the most viable segments built for full grade-separated HSR service at first, and the remaining lengths of the corridors upgraded to higher speeds as funds become available.

HSR corridors with blended trackage accommodating 110, 125, 150 and 220-mph service have trains outfitted for different kinds of track with different capacities. This works with proven technology, which allows for the gradual development of each high speed corridor in a 'phased network approach.'

A high speed spine connecting everybody more closely

Like any major kind of transportation infrastructure, HSR connects big cities to each other. Interstate highways also link big cities, while they draw auto travelers from many smaller cities, towns and rural areas in wide corridors along their lengths. It is similar with airports, which connect air routes from one city to another while they draw airplane passengers from large regions around each airport. As seen in all countries in which it exists, HSR puts major cities much closer together and opens new opportunities for economic development in these cities.

However, HSR does much more than serve people travelling between major cities. While the high speed corridors of the Chicago Hub Network will link major cities, it will also bring the whole Midwest – small cities, towns, villages and rural areas – into closer contact with the big cities and with each other. It will foster much more travel between all these places.

It's useful to think of HSR as a kind of high speed backbone, one that penetrates and enlivens a whole body with its nerves and arteries coming in, wrapping around and going out again from the spine. With its power to annihilate time and space, HSR speeds up every type of transit that touches it. It thus improves the transportation options of everyone living within a broad radius of it. When an HSR line is put into operation it suddenly puts everyone in a region within closer reach. Thus the same sort of network effects, as would arise with a carefully planned RER system in Chicago, would with a carefully HSR system spread across the entire Midwest. Communities not directly on the line will be positively affected.

Such is the intention of high speed rail. Of course it must be carefully planned to create positive ripple effects across a region. Connecting transit systems, and all the systems that connect to connecting transit systems, must be coordinated across a corridor of service that is quite large.

What is required now, to launch serious thinking about HSR on the Midwest Hub Network, is a statewide integrated network plan, one for each state in the region. An integrated network plan

will look at all current and potential transit services across a state and assess how these will connect to the HSR spine. It will measure these connections down to the timetables, looking at populations served and the various existing and potential travel markets. It will be based upon careful modeling that provides realistic data on travel markets and synchronization of services as each segment is added to the system over time.

Such modeling for a Midwest system has not been done. It is expensive requiring top experts. However, the planning and forecasting that has been done shows that Midwest HSR holds great promise as a financially viable service that greatly expands transit options and ridership across the region. A list of pertinent reports is provided in a section below.

Union Station Tomorrow, Beyond the ‘Medium Term’

All of this takes us back to Union Station and the Master Plan. The new trains, tracks, operations, systems and services discussed in this chapter will, when layered and added together, require a place to connect them all. Such a place will be a high intensity point of connectivity serving thousands of transit riders daily. Union Station is well placed and capable of becoming that point. But this will require expansion of the station’s capacity far beyond what the medium-term improvements of the Master Plan will accommodate.

Union Station will be challenged to get more trains through, accommodating multiple types of service: local city busses and trains, metropolitan commuter rail, RER, intercity trains and HSR. The HSR trains will come from all directions to Union Station, where passengers will need to move freely to Metra, CTA, Amtrak, city and regional busses and downtown transit. At Union Station they will need to quickly connect to transit to the north, south and west sides of the city, to suburbs in all directions, and of course to national and international travel at O’Hare.

It's what Union Station was intended to be when built in the 1920s, what it has always been, and what it will need to be to a much greater degree in future. It is a unique place of union where all regional transit systems will unite, each element joining with the others there in a powerful point of connectivity. It will be a kind of fulcrum point where everything comes together, serving the city, the metropolitan region, the whole Midwestern region and the world with a close link to O'Hare. It will be where city meets region meets world, a global connectivity point on the edge of downtown Chicago that complements and enhances the airport.

Union Station should be viewed as of equal of importance to the airport, indeed of greater importance insofar as it will offer quick multi-modal connectivity to uncounted destinations including of course the airport itself. So what will be needed there for all of these travelers, for all of the populations of people coming in and connecting, switching from one type of service to another, putting trips together, mixing modes and sorting out as they go in their many different directions, is a kind of great mixing bowl. The station, though large, need not be complex, chaotic or arcane. Rather it should be open and light-filled with clear sightlines and easy paths of movement up, down and horizontal.

Being visionary

The Union Station Master Plan, as noted in the first essay, anticipates a scenario in which HSR is operational by mid-century, greatly increasing the number of inter-city travelers arriving and departing daily. To accommodate this, it lays out 4 schemes to greatly increase the station's capacity, schemes which are not mutually exclusive but could be paired. As their need seems far in the future, and contingent upon the uncertain development of HSR, the plan relegates them to a 'visionary' status that does not compel serious planning and modeling at this time.

Actually, planners have been thinking about a great capacity expansion at Union Station for a while. Talk has revolved around

the idea of getting a tunnel under it, much as has been done in London, Paris, Milan and other European cities to better connect and greatly expand old legacy rail systems. The thinking goes back at least to 2001, with a tunnel scheme in the Central Area Plan for downtown Chicago. That plan foresaw a completely new West Loop Transportation Center (WLTC), an enormous 4-level tunnel below Clinton Street connecting Union and Ogilvie Stations.

Such bold thinking carries on in the current Union Station Master Plan, which acknowledges the WLTC scheme from 2001 as an important precedent. The plan's long term 'visionary' component also calls for something big: an opening up of the concourse, essentially building a new one, and tunneling below.

The plan presents two ideas for opening up and rebuilding the concourse:

- Redevelopment of the 200 S. Riverside block, removing the tall office building (the one that replaced the original Concourse Building in 1969), replacing this with a smaller office building, separating and opening up much more space for commuter and intercity passengers, and providing capacity for up to 5 through tracks.
- A new facility in the 300 S. Riverside block, to be constructed on air rights over Union Station's south tracks, it would be integrated with the existing office building on this block that is located above the mail platform (proposed for conversion to two wide intercity passenger train platforms in the medium term), and connect to the existing concourse below street level via a walkway under Jackson Boulevard, allowing the existing concourse to be dedicated entirely to commuter passengers

The plan presents two ideas to add tracks and platforms in underground alignments that bypass and augment Union Station's existing tracks and platforms:

- Clinton Street Subway (like the earlier WLTC concept)
- Canal Street Subway

Either of these tunnels would completely bypass the station's existing tracks/platforms, connecting with existing lead tracks to the south at Taylor Street and to the north and west at Racine Avenue.

The tunnels would have at least three and perhaps four levels below the surface of the street, including: a mezzanine level for passenger movement; a level (or perhaps two levels) for passenger trains and/or intercity HSR trains; a lower level for CTA trains, which would come in via new spurs of the CTA's Red or Blue lines. A second level for commuter and intercity trains would greatly increase capacity by providing a total of four platform edges served by four through tracks.

A Clinton Street subway would have a direct connection to the Headhouse, while a Canal Street subway would run between the Headhouse and the existing concourse. An advantage of Canal Street is that it is wider than Clinton Street (100 feet vs. 80 feet), making it possible to construct four tracks with two island platforms on a single level, allowing a simpler design with less steep grades for the tracks.

The tunnels would extend to both Union and Ogilvie Stations, making a direct connection between the city's two busiest commuter terminals. Most of the right-of-way identified as being required for the subway is in public ownership.

Such are the 'visionary' concepts of the Master Plan. It is important to note that all put emphasis on through-routing at Union Station. Indeed, the plan even calls for constructing a fourth lead track on the north side of the station, which could be squeezed in to accommodate more through traffic. Thus, while most tracks would remain as stub-end tracks, there would be a significant increase in through tracks from the two that will open with the mail platform conversion of the medium-term Phase 1.

Regional express rail, which is not considered in the Master Plan, would integrate well with any of these schemes. Indeed, it would be possible to connect the UP-N and UP-NW to the Metra Electric by means of the Phase 1 through tracks, and/or by tunnel under Clinton or Canal Streets. As noted above, the two

UP lines combine near the Clybourn station, south of which an old line (that once led to the old North Western Station via bridge just below Kinzie Street) turns off. Trains following this route beneath Chicago Avenue could be given entrance into the proposed tunnel under Clinton or Canal Streets

Either of the two concepts for opening up and rebuilding the concourse could be matched with either of the two tunnel concepts. The Master Plan states that a tunnel would be substantially more expensive to build, suggesting that a concourse rebuild should be done first, while a subway alternative would become important in the long term after the capacity of the surface tracks and platforms is no longer adequate.

Measuring and Modeling, Estimating Cost and Benefit

A remade Union Station and Crossrail will not be inexpensive, but initial modeling by various experts shows considerable cost and service advantages. The Chicago Union Station Master Plan (2012) estimates that its thirteen Phase 1 improvements together will cost \$200 million, which is actually a quite modest sum in the world of big infrastructure although the estimate was made some years ago. Meanwhile, numerous studies going back to the 1990s have given cost and benefit estimates for the emerging Chicago Hub Network of higher speed rail and HSR. *(there is now a Chicago Terminal Planning Study being considered)*

A few studies mentioned here give some well-grounded, quantified estimates of costs and benefits of discrete projects. However, they fall far short of the systemwide, systematic planning and modeling required to understand real costs and benefits of many projects working together as a regional system. Such comprehensive modeling will be required to understand the rising benefits of the interactive transit systems, carefully coordinated, that are discussed in this essay. It has not yet been done.

RER

Cook County has led talks among the region's transit service providers (CTA, Metra, Pace) to upgrade the Metra Electric to RER-type service with greater frequency and lower fares, in an effort to provide South Side neighborhoods with higher frequency service and better regional connections. An initial study sponsored by the county predicts it will significantly increase ridership on these Metra lines and should increase revenues for all three service providers. However, to ensure the new service gets going, the county appears ready to provide a financial subsidy to offset Metra's potential losses.

Such an upgrade, on the part of Metra's system actually built and best suited for RER, will be an important first step toward building a regional system with through routing at Union Station. More on planning requirements for RER needed here.

Crossrail

The Midwest High Speed Rail Association has assembled realistic cost and benefit estimates, looking at Crossrail as a phaseable project. It is considered as a collection of many projects with independent utility. It therefore separates capital costs for the main parts, summing these for a total capital cost of \$3.9 billion. To put this in perspective, it's worth noting that this is about half of the estimated cost of the current O'Hare Airport expansion project.

Among the projects that MHSRA considers highest priority to implement Crossrail are the Union Station through tracks, a new train station at O'Hare, a flyover at the A-2 juncture, and the 16th Street Connector.

MHSRA also assembles estimated annual ridership from various sources to show significant gains in ridership, although it calls for more detailed analysis to understand the potential impact of Crossrail. *(more detail on Crossrail cost/benefit needed here)*

HSR

A US DOT document of 2009 noted the potential market for intercity HSR encompasses 43 million people within 3 hours of Chicago. The Midwest region of the United States has been compared, in size and population density, to France which has so successfully implemented and continues to build HSR.

Important HSR studies include the following – *to be described in detail* –

- 2009 SNCF Midwest High-Speed Rail Network Study: This study by the French National Railways (SNCF) determined that linking Midwest major cities with world class 220-mph HSR would cost \$68.5 billion, serve 40 million passengers annually, reduce trip times between major cities to under 2 hours, and would fully cover operating cost without government subsidy.
- 2009 TranSystems Chicago-St. Louis Corridor Study (for the MHSRA): This study found a proposed corridor via Champaign and Decatur has the alignment and grade for 220-mph service, could run between downtown Chicago and downtown St. Louis with stops in key locations in 2 hours, could be built between O'Hare and St. Louis for \$12.6 billion, carry between 2 and 3.9 million passengers per year, and offer numerous environmental and economic benefits.
- 2011 EDRG + AECOM High-Speed Rail Network Outline and Economic Benefits for Chicago Study: This study by the Economic Development Research Group and AECOM, based on a study sponsored by Siemens for the MHSRA, estimates construction costs, benefits and ridership on 4 HSR (220-mph) routes. It looks at train vs. airplane travel in terms of travel time and cost. It finds that the system would cost \$83.6 billion and generate significant economic benefits, such as an additional \$16 billion in sales revenue in Chicago.

- 2012 TranSystems Midwest High-Speed Rail Network Benefits Study (for the MHSRA): This study builds upon the AECOM/EDRG study looking at 4 HSR routes (a 4-spoke Chicago hub network with routes to Minneapolis, Detroit, Cleveland, Cincinnati, St. Louis), finds that the network would have 44 million annual passengers with significant mode shift from auto and airplane travel, and significant economic benefits for the main cities and smaller cities.
- 2013 University of Illinois Feasibility Study (for IDOT): This study looked HSR (220-mph) from Chicago to Champaign, with routes from there to St Louis and Indianapolis, estimating cost of the Chicago-St. Louis route to be between \$23 and \$37 billion, with ridership projections of 8 to 15 million passengers annually and profitable operation.
- 2017 Phased Network Approach: This study produced by MHSRA examines the massive synergies of highly integrated networks of intercity trains and local transit systems, refuting the perception that HSR is a separate technology serving only to connect large city pairs, positing instead an approach that integrates HSR segments with diverse feeder lines, blending these to achieve frequent high speed service that can be implemented in phases across the Midwest.

It should be noted that all of the studies, while looking at HSR from different angles, arrived at quite similar results. The ridership estimates of the studies are remarkably consistent and actually may be too low. They show that doubling travel speeds from 110 to 220 mph makes a train ten times more popular and useful. As for cost, the SNCF study may be too low, while the U of I study may have a cost estimate that is too high. The 2011 AECOM study did an economic benefit analysis only for Chicago.

A Return to Bold Planning

It's right before our eyes

A satellite view of the region shows what needs to be done. The wide fan of rails radiating in diagonals from the center, a great legacy of the old 19th century railroads that has served the region so well for so long, continues operating much as it has for over century.

That the lines be more tightly connected, as nerves joining a single spine in an ever more fully integrated system, appears as obvious progress in making this legacy infrastructure more useful. Such progress will make in more interconnected, letting trains cross through the region, bringing faster and more frequent service to many communities by means of RER, Crossrail and HSR.

While planning for development along the region's rail network goes back at least to the 1960s without much success (e.g., NIPC's 'Finger Plan'), the imperative reappears more urgently now with gathering efforts to transition beyond a carbon economy and sustain the world's cities. The transit systems discussed in this essay are now proven for many cities of the Old World that have been working for decades with great success to enhance their legacy rail systems.

And if we look at our regional planning it's all there, at least in pieces. We just need to put the pieces together. The Chicago Metropolitan Agency for Planning (CMAP, successor to NIPC) doesn't seem to like big conceptual schemes very much. CMAP calls Crossrail a 'far-reaching and ambitious project' while relegating it to 'unconstrained' status in its year 2050 Plan, meaning there's no funding for it. At least it's a step up from the agency's 2040 Plan, which placed Crossrail into 'projects not included in universe' (!). CMAP has Union Station Master Plan's Phase 1 on its current fiscally constrained list, while it leaves the WLTC subway concept, RER and Metra Electric improvements on the unconstrained list. CMAP says that Metra is 'encouraged' to study RER on the UP-N, UP-NW and RI, while it calls for a

‘partnership’ among agencies to move the Metra Electric forward.

CMAA’s list of unconstrained projects is where projects go to die. Some have been on it not for years but decades. It’s actually irrelevant as far as judging them on pure planning merit, saying essentially that projects that haven’t been sufficiently analyzed need more analysis. With this tautology, it dispatches with projects that haven’t gained sufficient political support to warrant further planning and funding.

But if we look at the plan’s individual projects, where CMAA is in its element working with the agencies and units of government sponsoring them, we see the clear outlines of a work program for RER and Crossrail. This appears in the recent 2050 Plan, on both the constrained and unconstrained lists, where projects are listed as separate things but could be combined into one unified project.

These include (on the constrained/funded list): Metra A2 Crossing, MD-W improvements, UP-N improvements, UP-NW improvements, RI improvements, WLTC/Union Station Phase 1; and (on the unconstrained list) Metra Electric improvements, MD -N improvements, NCS improvements, RI/UP-N/UP-NW RER projects, O’Hare express service, Pace express bus expansion, WLTC Phase 2.

Take all these, put them together, enhance them and we’ve got Crossrail. It’s just right there – we’re planning for it without even seeing it.

These projects are looked at, modeled and planned for in specific corridors and communities, at the behest of one or more service providers which sponsor them to gain the funding to implement them. Many contribute to worthy regional goals.

What does not occur is planning and modelling of all of them as one system. The various implementers are submitting and competing for funds for their various preferred projects, rather than planning for projects as if they were assigned to them from a higher planning authority. Such an authority, should it exist – it

doesn't – could lead more thorough systematic planning at regional scale, which would begin to look like really effective regional planning that brings about actual change.

Regional planning of this kind, which composes and measures the value of one regional transit system, has not been done. As it is, single projects are evaluated in the light of overall, fairly general regional goals. While useful, this falls short of systematic regional planning and modeling.

To really make progress in regional planning, to make real change in how the region's transportation system functions, as called for in the proposals of this essay – Crossrail, HSR, RER – will require systemwide, systematic regional modeling and planning. Such work results in integrated network plans for metropolitan areas and for states, based upon careful modeling that provides realistic data on travel markets and synchronization of services as new segments are added to the system over time.

Short of this, the many separate projects listed in the regional plan, kept separate and evaluated as such against general regional goals, will never stack up. We'll never get to planning for fundamental change.

What it's all about

These essays are concerned with getting to networks of modern passenger trains. They acknowledge that a remade Union Station and Crossrail will not be inexpensive while they assert that these projects will give Chicago a state-of-the-art, 21st Century system, one very similar to the kinds of systems our global city rivals are currently building. Now is the time for Chicago and the Midwest to begin building on its great legacy of rail infrastructure, to help the world transition beyond a carbon economy and to sustain economic development in this region for a century to come.

To understand its importance, it is useful to imagine Chicago's transit system in 2050 and beyond and ask, what might we see? Union Station is the nexus of a high speed network, a hub of

Midwest HSR, a center of alignment of all systems in Chicago, the metropolitan region and the Midwest. As such, it is hub of one of the world's largest economic regions, straddling the nation's second largest business district, a major international airport, a major convention center and other key points of connection.

We tend to think of O'Hare in this way, as a connector that stimulates and supports the regional economy; hence the urgency, felt so strongly during the past three decades, to expand it. But how to connect to the airport? While the it opens the way to the nation and the world, it lacks strong links to the city and region, being reached and departed from by way of clogged expressways and one relatively slow and uncomfortable CTA train.

The whole region and world come together at Union Station, as a preeminent point of connectivity, where the express linkage with O'Hare will bring the airport into connectivity with the region – the metro region and the whole Midwest. In this light, the airport is but one critical part of it, giving the national and international connection. Union Station, as the centerpiece of Crossrail, HSR and RER, will open new mobility opportunities for people across the city and the Midwest.

Such a place will generate significant economic activity. Indeed, it promises to become a source of spreading economic benefit at many points along the lines leading to it, in a manner that is seen already in London Crossrail. *(more detail on economic development in London and elsewhere needed here)*

Getting started

So how to get the stars to align over Union Station? It is a question of how to plan, fund and build the systems discussed in this essay. All of them are eminently workable. But they require strong political support. And they require a stronger apparatus of planning and management than what the region currently has. This, in turn, will require strong political support to create.

Such is the focus of the next chapter. But before any major reforms occur, we should continue with a few critical steps. First of all we have to complete the Union Station Master Plan, getting funding in place for it and doing this with some urgency. Stalling here will stall everything, while progress will open the way to further discussion on what Union Station needs to be.

Now there is an excellent opportunity to fund the Master Plan, as Amtrak has approved a proposal to redevelop the station's Headhouse and an adjoining block. The developers have said this new development, including hotel and office tower, will generate approximately \$19 million in annual property taxes. This should support the Phase 1 projects by means of a value capture vehicle, the state-authorized Transit Facility Improvement Area (TFIA) financing for four major Chicago projects including Union Station. TFIA functions something like a TIF District except it's better, because it directs all funds only to specific transit projects while not depriving schools of revenue. At Union Station, the TFIA would need to cover just three blocks to leverage significant funding for the Master Plan.

The City has already approved a TFIA for the Red/Purple Line modernization, with great success. It can achieve the same at Union Station.

Also of great concern is gaining the city's support for Metra Electric express service to open new mobility options for South Side and south suburban residents. Currently the city is clinging to the Red Line extension proposal, which is an inferior project that does not remotely contain the potential for transit expansion and connectivity offered by the Metra Electric. It is imperative that the City of Chicago join with Cook County and with the three service providers to move this important project forward. It is a first major step toward proving the value of RER for the Chicago region.

Also important, of course, is continued thinking about O'Hare express service, specifically how this effort can become multi-dimension to serve other transit needs beyond the downtown-to-airport market. In such considerations the logic of Crossrail will

naturally arise. A direct rail connection to the new O'Hare Terminal 2, as an element of Crossrail, should become an important part of the current planning for the airport's expansion.

All of these can be done now. What's needed for Union Station transformation is much more. It requires political energy to reform regional planning procedures and structures. It gets to the politics of it, in an environment where metropolitan governance is weak. This challenge will be taken up in the next and final chapter.

References

Data on Metra trains and commuters came from current schedules for the six routes using the station, and from a table of downtown station boardings over time, courtesy of Metra.

Data on Amtrak trains and passengers came from its State of Illinois Fact Sheet, fiscal years 2005 and 2015.

Forecasts and plans came from Union Station Master Plan (2012), specifically:

Overview, see <http://www.unionstationmp.com/background/2012master.php>

Chapter 3, p. 32. See <http://www.unionstationmp.com/wp-content/uploads/2012/05/3-Background.pdf>

Chapter 4, p. 58. See <http://www.unionstationmp.com/wp-content/uploads/2012/05/4-Ideas-for-Improvements.pdf>

Much information on Union Station's history and current status came from an excellent new book by Fred Ash, entitled *Chicago Union Station* (Bloomington: Indiana University Press, 2018).

A helpful article came from Aaron Renn, "Is Chicago Union Station Redevelopment Soldier Field 2.0?," Urbanophile, see <https://www.urbanophile.com/2018/06/26/is-chicago-union-station-redevelopment-soldier-field-2-0/>

I obtained a lot of useful information and helpful insights from officials at Amtrak, CDOT and Metra, as well as from attending two public hearings during summer of 2018.

All opinions expressed in this book are my own.