

**PLANNING CONSIDERATIONS FOR PROJECTED INTERMODAL RAIL YARDS IN
THE CHICAGO REGION STUDIED BY KEY-INFORMANT INTERVIEWS**

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ABSTRACT:

Using the data obtained from the structured interviews of 33 professionals with a high level of technical knowledge specific to the subject of intermodal rail yards and their associated operations, this study addresses 10 issues that cover not only the design and layout issues within a terminal, but also broader topics such as administration/ownership, location, and other topics that may be overlooked by the designers.

This is still a preliminary report, so we will only present discussion regarding some of the results that we consider to be of greatest import concerning the development of intermodal rail yards over the next decade. Based upon the level of collective expertise and insights expressed by the respondents, we feel these 10 issues, plus two which came to our attention from this study, warrant consideration in the planning for future intermodal rail yards in the Chicago region. Our key findings include that while a general level of interest for technology is high, it is unlikely that deployment of them will be fast enough to provide sufficient capacity increases to counter the expected demand growth. Also, future Intermodal yards will likely to be at least 300 acres and 7000 feet in length. Given their size, it is likely that those facilities will be located in semi-rural or rural areas. While there is a high level of awareness for environmental issues among freight professionals, the perception tends to focus on the direct impacts associated with the Intermodal yards, while broader implications are often unnoticed.

INTRODUCTION

Recent publications have proposed that intermodal freight traffic in the Chicago region will grow by as much as 250% by the year 2020 (McCarron and LaBelle, 2002). Even with two new large rail yards functioning at full capacity, such volumes would overwhelm Chicago's capacity to handle this freight, so construction of additional intermodal facilities must realistically be considered. In that the two new yards, Logistics Park and Global III, represent radical changes from previous intermodal yards, it seemed appropriate to ask what various stakeholders perceived as optimal planning factors when considering such infrastructure developments. This study used structured interviews with the "key-informant" stakeholder representatives in rail and trucking industries, consulting firms, and public agencies in an attempt to identify the factors that determine the desirability of potential sites and also to assess the kinds of impact such developments might have on the region.

Logistics Park and Global III are three to four times larger than all previous intermodal rail yards in the Chicago market and were specifically developed in association with neighboring industrial developments in suburban-rural settings far outside the traditional definition of the city's metropolitan centers (BNFS, 7/20/04, Global III, 7/20/04). Even though these intermodal facilities are private corporate businesses, they cannot operate without the use of public roads and infrastructures. Given their large size they have significant impacts upon the region's environmental, economic and local character concerns. Understanding what market pressures and other considerations might be involved in the railroad's planning of future yards could help focus regional planning efforts to optimize their impact and contributions to the region.

Other groups with significant insight to intermodal rail yard planning include the short line railroad companies, who facilitate local railcar movements, truckers, who take the intermodal boxes to and from and between these yards, regulatory governmental agencies and select engineering or developer consulting-planning offices. Although each of these will make important contributions to various aspects of future intermodal rail yard functions, their input has usually been either after-the-fact or subverted to the mainline railroad dictates. However, identifying and documenting their concerns and ideas should be beneficial to all stakeholders, since they perform the functions that are integral parts of the operations of intermodal terminals.

While the design of terminal facilities is an established genre, within our knowledge, this study is unique in its scope and objectives. As discussed in the following sections, this study addressed not only the design and layout issues within a terminal, but also broader issues such as administration/ownership, location, and other topics that may be overlooked by designers.

In that this is still a preliminary report, we will not present an exhaustive analysis of our data here, but will rather discuss some of the results which we consider to be of greatest import regarding the development of intermodal rail yards over the next decade. While this study is specific to the Chicago region and its unique place in the international flow of freight, it is expected that some of the issues raised will have value for other markets to also consider for their future planning.

METHODOLOGY

We designed our survey instrument to address ten key aspects associated with intermodal rail yards, as developed with counsel from industry experts. This paper will be structured following those ten points. However, two additional issues became apparent as of potential import through the study. Thus a total of twelve planning issues will be considered in our discussion.

When considering how to structure our key-informant interviews to obtain the information we were seeking, it was decided that a questionnaire format would be developed to provide a uniform structure for the conversations to evolve around. This also would provide some quantitative aspects for the study to measure and eventually compare the several representative group responses. To this end, a large bank of questions using various formats was created. Following survey techniques for constructing such an instrument, goal targeted questions were selected, reworded, edited, reformatted and positioned as to create an initial questionnaire. After many revisions, a draft questionnaire was used to conduct three test interviews. Based upon the feedback from these interview experiences, additional significant revisions were incorporated to obtain a final questionnaire of 27 questions. Most of the questions had multiple parts and directly or indirectly addressed several of the ten planning issues. A number of internal controls were included for monitoring purposes.

Simultaneously, a list of potential “key-informants” was developed. This was desirable in that most of the information we were inquiring about requires a high level of technical knowledge specific to the subject of intermodal rail yards and their associated operations. We started from our knowledge of people involved, and obtained several interest group membership lists to expand our search. Using recommendations and references we constructed a list of knowledgeable potential interviewees from five groups of stakeholders shown in Table 1. Some additional people were identified for participation by interviewee referrals in a manner known as a "snowball sampling" technique. A sixth group of community leaders was actually identified but we have been unable to garner responses from them to date. Due to corporate railroad mergers and layoffs, many key former railroad personnel are now working for the same railroads as consultants, so some are categorized as respondents in the Class I group while others are associated with rail freight in other indirect capacities and were included as consultants.

Table 1 : Breakdown of Respondents by Stakeholder Groups

Stakeholder groups	Number
Railroads (Class I)	12
Railroads (Class II & III)	6
Trucking	2
Government	4
Consultant or developer	9
Total	33

A set of appropriately introduced letters was e-mailed to this contact list of key informants. Most respondents were personally interviewed using the developed questionnaire as a guide to the conversation. Therefore, technically, the data were collected by structured interviews. Since in-person interviews could not be arranged in a few cases, the interview was carried out by telephone. When neither of these options was possible, the respondents received the questionnaire as an attachment to their invitation to participate. They then printed out a copy, filled in their responses and mailed them to us. The resulting set of respondent group demographics presented in Table 1, shows the majority are representative of the railroad industry with engineering or planning consulting firms and developers being well represented. Governmental regulatory agencies and the trucking industry are less well represented to date, affording a lack of statistical significance yet providing some notable insights. A total of thirty

three (33) respondents are included in this report then, with uneven weighting of the five stakeholder groups, although our intent is to obtain a balanced representation.

RESPONSES AND INSIGHTS

We will first provide a descriptive definition followed by what we believe were some of the more important responses for each of the 10 planning issues. Along with the responses, we will discuss insights we gained to these issues, both in explanation among and between the different stakeholder groups and as planners trying to understand the application of this information to regional concerns.

General Functions

The term “intermodal” is used in many transportation contexts, so we limit our use in its application specifically to the combination of railroad freight with other modes of freight transport. In Chicago at the present time, that is further limited to the combination of rail with either truck or another rail. However, this study inquired about the potential for expanding this to include port, air and other modes of transport, all of which could make sense given Chicago’s strategic role in these arenas as well. General functions also include questions regarding the management of the rail yards and their general operations, dealing with capabilities, capacity and flow from day to night, week to week, season upon season, all of which have profound impacts upon their functional makeup. Also included within this topic are considerations of the rail company’s relationship to its surrounding communities, regulatory entities and funding, which is becoming increasingly critical.

It is the unique roles Chicago plays in freight transportation, intermodal rail freight specifically, along with the history that created its infrastructure that makes this issue a fascinating one. We inquired whether stakeholders saw that expanding the region’s intermodal freight role might be accomplished by taking advantage of Chicago’s prominence in air traffic or central location in the American waterways. To outsiders this has a certain holistic ring to it, but our responses clearly indicated history has sorted out what the markets are and how best to serve them. While a small concession to a possible change involving waterway traffic was allowed, our responses made it clear that intermodal rail will grow mostly within the markets and commodities it now serves.

We were quite surprised to find that while an overwhelming majority of the respondents (25 out of 33) agree that the improvements in technology will impact rail yard functions, almost no one in the rail industry anticipates these changes will actually affect the general functions of the yards. Capabilities and capacities were only talked about in the context of how things are presently done. The bottom line seems to be that changing the way a company runs its railroad is too great a change. Small shifts here and there can be incorporated, but redoing underlying principals or concepts will probably take more than technology to induce such rethinking. In contrast, truckers and regulatory government agencies are more hopeful that some technologies will improve their interactions with the railroads.

An even greater surprise which will be discussed below was the projected future of intermodal rail traffic through Chicago. The aggregated response frequencies are presented in Table 2. Class I railroaders and government regulatory representatives generally were more optimistic than the other groups, but even they as a group only project an increase of just over 50% by 2020, a far cry from some reports of over 200%. Proposed mergers and rerouting of some west to east traffic through other cities are notable considerations in their perspective. It is

interesting to note that all the governmental respondents expected the growth to be greater than 50%, while only half of the Class I responses did so. Class II and III along with truckers see 50% growth as quite optimistic.

Table 2 : Expected Growth in Intermodal Traffic

Change by 2020	Response Frequency
Within 10% of current volume	1
10 - 25% increase	3
25 - 50% increase	16
50 - 100% increase	8
More than 100% increase	5

A totally new area of discussion, or at least one with some recent possibility of becoming a reality, was the almost unanimous anticipation by the railroads for gaining access to federal funding for the goal of community betterment through infrastructure improvement. This would be seen as helpful because the railroads can then free up the resources they would have spent on these projects to address other needs. Regarding their relationship to regulatory and labor issues, most respondents took a stoic position that accepts the current situation and will strive to deal with any problems as they arise.

Specific Functions

Without trying to be exhaustive, an intermodal rail yard's specific functions include:

- Receiving trains to unload and reload, receiving trucks, ships or barges, airplanes or other modes of loaded and empty transport,
- Lining up empty transport vehicles to receive offloads from trains and then dispatching those vehicles,
- Lining up other loaded transport vehicles to upload onto the now empty train,
- Dispatching the now empty other vehicles,
- In between these two operations probably reconfiguring the empty train,
- Dispatching the now loaded train or newly configured trains,
- Storing unloaded freight which was not to be immediately dispatched,
- Storing or dealing with empty transport vehicles be they railcars, truck trailers, truck chassis, containers or a host of other possibilities,
- Maintaining paperwork on each piece of freight and each vehicle, and
- Monitoring its operations in relationship to its anticipated schedules.

Here again, there are significant new technologies being proposed which could radically change the way freight trailers and containers are handled in an intermodal yard, but few respondents were keen to go beyond rather mundane concepts such as better lift cranes or new spine car designs. Where most changes were anticipated was in the adoption of bar coding or radio frequency type technology as most often mentioned in connection with the entry and departure gates for the yard. Getting the paperwork streamlined, although not specified as such, was the most often repeated hope.

When asked about improving rail yard function by making the yards specialized in terms of the types of equipments used, most agreed the concept is nice but reality demands the ability to handle diverse and even unique loads and configurations. For this topic, there was a distinct

contrast in the response patterns obtained from the railroads and the others as shown in Table 3. Even in this however, it is striking that respondents in the Class I railroads favored a greater degree of specialization, whereas Class II and III railroads were more favorable to broader functionality.

Table 3: Optimum Level of Specialization

	Railroads	Non-railroads
Level of Specialization	Response Frequency	
Single process	8	2
Mixed function/process	4	4
Do-it-all	5	5

Several questions probed what specific functions might be added or modified, and how that can be accomplished. Many would favor adding more functions such as rail car, engine, trailer and container maintenance, repair and fueling. Similarly, many agreed that increased attention to human considerations and needs would be appropriate, both on the railroader’s side and the truckers. While some suggestions missed recognizing why certain functions are more economically done elsewhere, the general mood was to enhance a yard’s capability, making it an even greater center of activity.

While it was not specifically asked in the questionnaire, many interviewees, in answering some other questions, discussed and often drew track layout designs to share their favored configuration for expediting the stepping through these specific functions. It is beyond the scope of our study to assess the wide variety of proposals and very good reasons behind each concept. Suffice it to say that, as in the past, one can probably expect to see future new yards test new layout designs in the hope of finding the "trick" to making everything flow smoothly. Based upon what we heard, however, there probably is no such ideal. On the other hand, there are numerous poor layouts that can inadvertently make daily life in the yard more difficult, and examples of some of those can be found in existing intermodal yards.

We were intrigued by a number of very hands-on type suggestions related to improving aspects of these specific functions, many seeming to probably have applicability to one or a set of company yards where things were done a certain way. Finally, there is one issue that warrants noting as it will likely to be recognized in the future; the safety of the immigrant labors who work in a dangerous environment and not being able to adequately speak or understand the language. The trucking industry is now attracting many such drivers who, while driving on the road perhaps pose only modest concern, but with just a slight misunderstanding on a busy intermodal yard could easily put a truck in the path of a moving train or where a crane operator did not expect it to be.

Integration of Functions

Integration of functions is required for connecting one mode to another for load transfers, passing from ramp contractor to hostler to drayage or over-the-road truckers, the possibilities of transloading or value added processing, and the separate but joined multiple function possibilities of national and international freight handling, east-west traffic interacting with west-east traffic or north-south, etcetera.

The one new technology all respondents were anticipating would soon solve the integrative dysfunction was the use of information technology to help assure that when a transfer

was being made, the right box was being loaded onto the correct carrier so it would arrive at the proper destination. Since some transfers are not just one move, but a whole series of transfers, the problem can compound quickly should someone be one line off or misread one digit in a number. We were not very successful in obtaining suggestions on how to reduce the multiple step type transfers. Not surprisingly, Class II and III railroaders submitted that steel wheel transfers are a key part of the solution.

There is a wide spectrum of thought about whether to integrate some processes that take place outside of the intermodal facility within the yards, for the purpose of serving local market and industry functions. Should such concerns as transloading facilities and value added manufacturing steps be built on or as direct extensions to an intermodal rail yard, they could greatly facilitate local economic considerations. On the other hand, such additions could easily get out of control, disrupting the optimal process within the rail yard. It was noted that probably not a great deal of planning or design consideration has been devoted to this subject and some specific situations might be well served to conduct more in-depth study and even field test some ideas. Because of such expressed reservations, it is noteworthy that over half of the railroad respondents indicated they thought it would be beneficial to locate warehousing and industrial operations directly on intermodal yard sites. This percentage was far higher than the other groups.

One of the unique functions of the Chicago rail hub is to transfer freight from one Class I railroad to one of the other six Class I railroads. Freight in from the west coast ports, arrives on west coast trains and needs to be transferred to eastern seaboard trains to continue on its journey east, and visa versa. Similarly, Canadian trains running north to south on their way to Mexico, transfer freight for dispersed destinations in the American markets. About one third of Chicago's intermodal freight business involves this transfer between carriers. Although there is talk of additional railroad mergers making coast to coast carries a possibility, our respondents actively discussed reason this might not or should not occur. However, more importantly, all agreed even such mergers would not eliminate the need for expanding Chicago's intermodal yard capacity. So, one concept for improving this integration function which interviewees were asked to respond to was to co-locate two or more Class I yards so that transfers could be made directly, eliminating one or a series of intermediary transfer carries that are currently performed. The data indicate that most railroaders, 17 out of 25 respondents including the Class II and III group, were in favor of this concept. Also, 7 out of 9 consultants, who were mostly former railroad employees, supported the idea. In fact, most responses for this question started from suggesting a single co-location for all railroads and then gradually discussing why various difficulties would arise so that in reality maybe the arrangement that involves just a co-location of two yards would work best. Some, with further thought, concluded that the difficulties were insurmountable and eventually declared the whole idea infeasible.

Size

Hidden within the question of the size for an intermodal rail yard lies each railroad company's operating philosophy, the nature of market the yard is designed to serve, the general, specific and integrated functions it will be expected to perform and of increasing import, the mix of technologies it will employ to accomplish its work. Recent rail yards, taking the path of the simplest solution, have been developed on large open land tracts, independent of existing market complexes. Since such tracts of land are not readily available within the urban fabric, size will certainly dictate the region's planning direction for future rail yards and their accompanying

buildup land uses following these models. If, on the other hand, functions can be planned differently, the typical smaller yards may still be very integral to the overall system.

When asked directly whether there is a minimum and maximum size to consider for new intermodal yards to be developed in the near future, all respondents said yes there is a definite minimum, and that would be in the range of either 300 acres or 7000 feet long. A few were willing to allow slightly smaller and several felt, using the two recent yards as models for the future direction, 500 to 600 acres or up to 2 miles long were more accurate numbers. While a significant number of respondents said there may not be a maximum, about half of the respondents felt there was some maximum as limited by truck congestion and similar factors. Interestingly, none of the respondents, except one, could even approximate the upper threshold in size and length. These answers alone might lead one to conclude that all future yards are going to compete for having the largest yard. However, the discussions related to other questions revealed a support and considered reasoning for both maintaining most of the smaller existing yards, and building new yards to fit niche marketing opportunities, maybe even as small as a 10 acre yard. Also reflected throughout most conversations was the abiding concept that at least some yards are serving a constituency of more than just the railroad needs and therefore their general and specific functions could fit within more restricted spaces. Clearly some of these conversations raise the issue of ownership, which we discuss in number six below. This then raises the encouraging argument that not all future intermodal rail yards need to be equal, in their size and grandeur, their functionality or expected productivity. One other point that was emphasized in a number of interviews was that size does not directly translate into productivity terms, a number of respondents being eager to describe examples of such mismatches from the past.

Location

Parallel to the size, locations for future intermodal rail yards warrant much wider considerations. These could include their relationship to other modes of transport not presently part of the Chicago system (e.g. water and air), their adjacent warehousing or industrial markets, and their considerations for the human, community and urban settings of the area surrounding the yard. Due to a number of features unique to Chicago, the success of future yards could be heavily dependent upon the location.

As indicated above with regard to integration of functions, more than a majority of railroaders considered placing warehouse and industrial activities directly on future intermodal sites. Just under half of them selected placing such activities close by intermodal yards as a favorable concept. While trucking and regulatory participants seemed disinterested in such considerations, the consultant and developer group unanimously agreed that having such operations close to future intermodal sites was a significantly important consideration.

Only a few see any value in contemplating the connection of either air freight or waterway freight with rail transport. Interestingly, it was most of the consultants and developers who saw these as having a potential future.

When looking to place an intermodal rail yard, from the perspective of the yard's workings, yard size and its associated functions such as access to truck routes, urban centers and markets were ranked as the highest concerns, 4.2 and 4.6 out of 5, respectively with 5 being the most important, and 1 the least important. Yard function issues were ranked low, around 3 out of 5, right along with concern for local economic impacts and labor concerns. Environmental concerns ranked higher, at 3.9, and were given serious consideration among all groups.

It was somewhat surprising that when asked what environmental issues were pertinent to locating future intermodal yards, the railroaders were more focused on noise and site run-off, while other groups recognized air quality, the amount of a site covered or left natural and impacts on wildlife as significant issues too. This suggests both greater awareness and education on both sides would be helpful. Only a few mentioned an added concern for hazardous materials with regard to the shipping of these as freight. This is partly due to many seeing that issue as within the run-off context, but certainly there are other forms of danger from tank cars and containers which are handled at intermodal yards, so this too needs further attention for both locating and designing future yards.

Yard Ownership

On the surface, this would seem to be a non-issue since perception is that all rail yards are owned by the Class I companies. Not only is this not true, but there are substantial arguments for reconsidering future ownerships. Only some possible examples are explored by this study but the overall issue is brought to consideration.

Responses were overwhelmingly in favor of considering alternative ownership arrangements for future intermodal yards. Class I respondents recognized that the intense capital costs of such yards would be an additional burden to the railroads, and thus the thought of other sources fronting the funds has a great appeal, with just one small caveat, as long as it is not government ownership. While Class II and III rail respondents wholly agreed with the concept, and we had anticipated they might be enthusiastic candidates, most turned down the offer for reasons similar to the Class I railroads. Not surprisingly, government and regulatory responders thought the arrangement similar to the one often applied to airports could be a good deal. Several railroaders specifically indicated that local government ownership would not be looked upon favorably. A number of creative ideas were put forth by the developers and consultants including modifying the existing arrangements with a railroad associated industry, or a large manufacturing industry holding a dedicated yard. An idea supported by the truckers was that truck and large shipping companies or a drayage company might be suitable owners. When the ramp contractors were suggested as potential owners, it generally received a cool response.

Data / Records Handling

For the most part, there are two categories of data and records involved in the ongoing operations of an intermodal rail yard. One category is on-site materials necessary for the immediate handling, documentation of and billing for each component of the transport chain. The other category is off-site materials involved in receiving and passing on each component in an orderly fashion and documenting these processes for regulatory and market entities. While some of the on-site and off-site information may simply be duplicate copies, each component has attendant information particular to its role in the overall scheme.

Key aspects where this issue can contribute to enhancing intermodal rail revenue and volumes is in boosting operating efficiency and by making information more readily available, especially to customers. Concerns for the on-site materials relate mostly to design questions and new technology while the materials that need to interface with off-site systems warrant consideration in the siting of the yard and utilities.

Although there was no direct inquiry in our questionnaire on this issue, more than ten questions included one or both of these areas from various perspectives. Thus, it was not surprising that information and communications were frequently brought up by all respondents

as one of the most pressing issues for consideration in the planning of future intermodal yards. The hope that adapting existing technology, or finding new technologies could facilitate the integration of yard functions was universally expressed. It was pointed out that the use of information technology should make it possible to better keep customers informed of where shipments are and when they might arrive. Some respondents observed that the closer to the scheduled service the trains can operate, the larger will be their portion of the freight traffic.

Security

Since the inauguration of the Pinkerton services, rail security has been a big issue. However, most outsiders are not aware of the seriousness of the issue, although recent world events have helped everyone appreciate the intensified need for better methods of securing our transportation systems, including freight. Here, not only the yard site itself, but the moving components arriving and leaving and also their transfers away from the site must be addressed. Present circumstances tend to focus attention on terrorism, but worker safety and hazardous materials handling are also important considerations for these sites.

While only a few respondents brought up concerns for hazardous materials, everyone agreed that terrorist type concerns needed to be addressed. Insights offered as to how and where to bring this into the planning of future yards were viewed by many in relation to improving data and record handling combined with new IT methods. It was felt that by applying these to the gate areas of entry and dispatch, a significant improvement to site security could be achieved.

Such improvements would also be expected to have a significant impact in reducing theft. This factor seemed to be an area of concern perhaps slighted by the industry because it is such a fact of life in the freight industry. If we understand our interviewees correctly, one reason for this condition is that the railroads in reality have no way of monitoring their losses in real-time parameters.

Impact of Weather

Unfortunately, we routinely overlook the fact that weather plays a large role in the day to day operation and success or failure of the freight system, including the railroads. There were wide differences in the opinions regarding this topic. For many, weather is not an issue and their responses were scant. However, in direct and indirect references of others, it became clear that Chicago is disadvantaged by its location and the severe climate in retaining its large share of intermodal traffic. Although southerly routes have their drawbacks that may appear to be insurmountable, some are giving serious consideration to the potential benefits of operating the yards in less severe climate conditions.

Environmental Concerns

Air quality, noise pollution, amounts and contaminants of site run-off are clearly the factors impacted by the presence of an intermodal rail yard. In addition, recent planning questions ask for consideration regarding the percentage of site coverage and the possibility of naturalizing small and large unused fragments of a site.

It was a reaffirming surprise that many railroad respondents, in addition to being concerned for noise and run-off impact, expressed more than just a passing interest in the idea of naturalizing portions of future yards where possible. This was in contrast to the general lack of recognition for the air quality impact. Fortunately, the government group, consultants, and developers did generally recognize the air quality issue and ranked it with run-off as a primary

concern. It was in this environmental context that a couple of interviewees noted concern for the handling of hazardous materials.

DISCUSSION AND CONCLUSIONS

Let us first discuss several aspects of the respondents and their responses in general. We asked each interviewee to indicate their professional interest and work involvement with intermodal rail yards. Keeping in mind that all interviewees were selected as “key-informants” from their stakeholder groups, we expected all to have a very high interest, so the more pertinent variable was their assessment of work involvement. It was not totally surprising that the individuals who were closely associated with the workings of intermodal rail yards tended to underrate their involvement, while some having seemingly more remote associations tended to enhance their roles. We believe some internal controls helped our interpretation of these ratings

Within the group of Class I railroad respondents it should be noted that all six of those companies which traffic in the Chicago region are represented. Due to the recent and multiple mergers in the industry, some of those assigned as representing a given company are not currently in their employment, but their current and high level of knowledge warranted their being classified in this group. It is further noteworthy that some who are directly involved in intermodal rail yard decisions and functions did not have to be too far removed from the details of hands-on practical working experience to have radically different perspectives concerning some issues we addressed during the interviews.

Perhaps it is our naïveté, but it was striking how supportive the Class II and III representatives were of the Class I railroad positions and concerns in almost all regards to intermodal and other railroading issues. The areas of difference are few and minor compared to what we were anticipating as one of our major talking points.

The glaring lack of trucker and community leader responses reflects at least two factors. The first is the design of the research.. We probably have not yet found the right approach for tapping into their ranks, so our requests are given low priority consideration. On the other hand however, it seems true to us and many others who participated in the interviews that truckers do not have the channel to organize and express their ideas. For example, the truckers in this market are almost entirely owner operators. Therefore, they do not have a formed group, regular meetings, or a sense of unity. Consequently, they are not suited for the snowball sampling technique that was used effectively to secure interviews with many of the respondents in the rail industry. The few contacts we have had with community leaders would indicate that unless we are offering to sit at the table and offer their communities some proposal involving dollars, they really do not have time to participate.

Consultants and Developers, as a group, surprised us in several ways. Developers, while not knowledgeable from hands-on experience, were strikingly well informed. While their views were seen to differ from the railroaders on a number of the issues, it was clear their opinions were well grounded by their business perspectives and understanding of the rail industry.

In terms of the relevance of the findings, the most critical information we uncovered was the divergence in perspectives related to respondent's backgrounds. Perhaps, the response related to the functional and operational specialization of the yard is the best example to illustrate this. While those not responsible for the day-to-day operation of the intermodal yards tend to endorse the multi-functional capabilities for future Intermodal yards, the "insiders" within the rail industry indicated specialized yards would function better. In fact, none of the Class I

respondents supported the multi-functional yards. Similar patterns of divergence were observed in the responses regarding the importance of the proximity to the airports, hump/classification yards, and industrial warehouses and also the projection for the future growth in the Intermodal freight. While we are not qualified to judge the merits of the opinions, the implication for public policy and transportation planning is the importance of enhancing the knowledge base. As noted previously, the infusion of public money to help improve the rail infrastructure is expected to become more prevalent, thus both the railroads and the outsiders, especially the public sector, must develop a relationship that helps facilitate the integration of rail projects into the mainstream of the transportation planning process. It should be noted that since we used the membership listings of various organizations, most of the respondents are regularly exposed to the presentations and seminars given by the professionals with a variety of backgrounds. Perhaps, more intensive forms of knowledge building such as exchange programs, collaborative projects, and liaison arrangements are required to achieve the higher level of intellectual capital.

One other issue we should address is the authors' biases in coming to this subject. We are transportation planners concerned with freight issues in the context of a regional planning perspective. We are supportive of rail freight in that its efficiencies have potentials for lowering environmental impacts resulting from the present high truck traffic. Airports and rail yards are some of the largest land use parcels in a region, so they play prominent roles in planning considerations beyond just transportation concerns and, as planners, we consider other aspects of the region's functionality beyond just the transportation. It is this last point that most biases our perspectives in this study regarding specifically planning for future intermodal rail yards.

Some of the pertinent questions and our prognoses based upon the responses obtained from these interviews are summarized below.

- Will Chicago's intermodal freight traffic increase dramatically by the year 2020?

Based upon this study, growth will continue at a steady modest pace, at something in the 6% range of annual increase. This conclusion may derive from our study group's insights regarding various impacts of possible mergers. Others seem convinced that the rails are already functioning so close to capacity that large increases cannot be achieved.

- Will railroads embrace and prosper by the use of new technologies or be replaced by them?

Maybe we should not be so surprised, but it seems clear to these authors that the railroads move at a slow pace when incorporating most changes and even slower when it involves new technology. Therefore, we anticipate that the railroad industry will expand its intermodal yard services in the Chicago region in part, by utilizing some IT solutions to handle their enormous communications load. There may even be several new layout designs in future intermodal yards built in the area. We should not, however, hold our breath in anticipation of radically new ideas being integrated into expanding the region's rail intermodal freight capacity or services.

- Are federal dollars in the railroad's future?

If federal money is to be spent on railroad infrastructure projects, such as the CREATE proposals, some type of concessions will be requested by Congress in allotting such funds. We are not knowledgeable as to what kinds of concessions are being discussed, but it is certain that if the funds impacts the flow of roadway funding to the region from the Federal Highway Trust Fund, then the trucking industry will have some input to those conditions. The only insight this study gained regarding this issue is to reaffirm that railroads, local government agencies and developers and consultants support the idea and local trucking interests are not adamantly opposed to it.

- What modifications can we expect to see in future intermodal rail yard planning and design?

First, several of the smallest existing intermodal rail yards where their local markets have disappeared, will be closed or reconfigured for other uses. Secondly, Willow Springs is seen as the best planned local yard, so many of the lessons learned from this yard will be emulated in some future intermodal yards, including the size and location within the urban setting. Thirdly, if increased demand does move the railroads to add significant capacities to their Chicago hub, we can anticipate yards even larger than Logistic Park and Global III being located in semi-rural or even rural areas. Such developments may very well include two or more rail companies co-locating certain mutually beneficial operations at such a yard.

While the railroads and developers seem to be concerned about the environmental impacts caused by the Intermodal yards, that perspective would definitely have on very narrow blinders. For example, should some group(s) come to the railroads with significant capital to invest, it seems very likely that a future intermodal rail yard would be developed with non-railroad ownership, in conjunction with warehousing and industrial interests. Depending upon who designs and engineers such sites, there may or may not be consideration given to expanding the amenities and functions within the rail yard and in the immediate surrounding developments.

- Should the 10 issues discussed in this paper be considered in the planning and design of future intermodal rail yards?

Based on the level of collective expertise and insights expressed by the respondents, we feel the 10 issues we studied warrant consideration in the planning for future intermodal rail yards in the Chicago region. However, we had not identified two additional issues in our initial preparations for interviewing, but it soon became apparent that future intermodal rail yards would need to consider these issues. The first is Customer Services. This is probably a broader area than first comes to mind, and that becomes recognized by simply asking “who is the customer?”. Depending upon the context, there are many answers to that question and it is those contexts that beg consideration in planning future intermodal rail yards. In addition, community leaders and regulatory agencies have an interest in the impacts future intermodal yards may have on the Utilities Infrastructures of the region, and thus should be included as an issue of concern

Just as we discovered that Customer Service and Utilities Infrastructures need to be added to the list and explored further, there may be some other issues that have been overlooked. Therefore, we do not hold that this is the complete list of factors. The authors expect that, because each yard does fill a unique role within the market's functions, each yard will have different degrees of emphasis among these issues when considering their application to the planning and design processes. It is gratifying to be able to say that based upon our interviews, this general subject and most, if not all, of the issues raised are recognized as of great interest to involved stakeholders and worthy of their attention in future decisions.

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