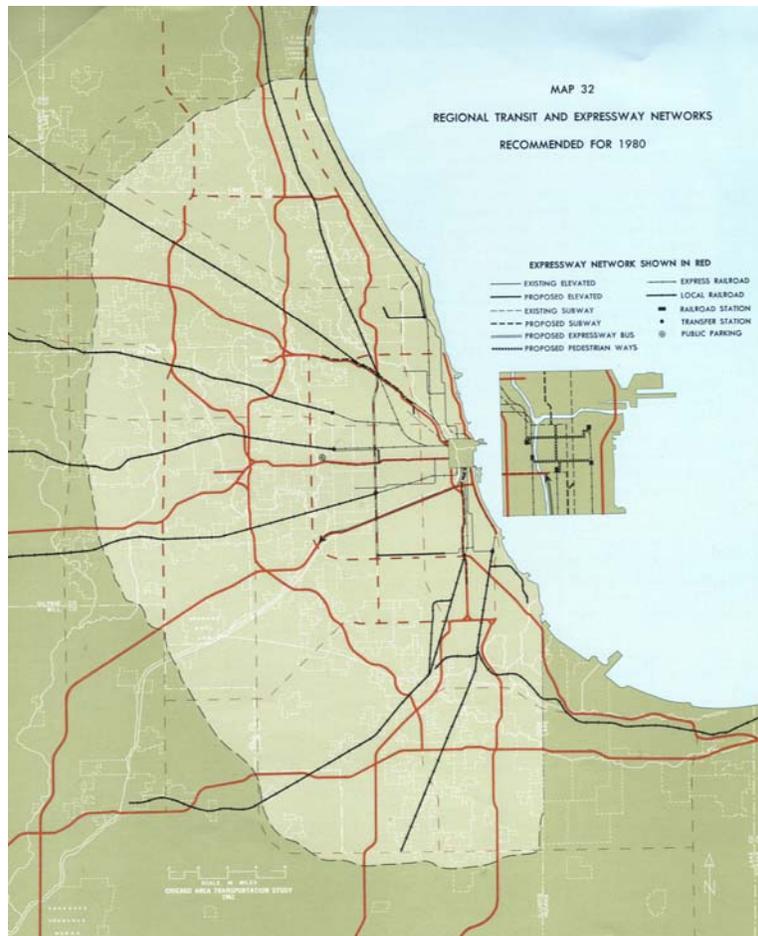


THE CHICAGO AREA TRANSPORTATION STUDY Creating the First Plan (1955-1962)

A Narrative
By
Andrew V. Plummer



**THE CHICAGO AREA TRANSPORTATION STUDY
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THE CHICAGO AREA TRANSPORTATION STUDY Creating the First Plan (1955-1962)

Introduction

Fifty years ago this summer, the largest transportation survey ever conducted was taken to provide data for the newly-created Chicago Area Transportation Study. By late September, the survey had been completed at a cost of \$700,000 with a peak employment of more than 350 people. The core survey was an effort that involved home interviews of 1 out of every 30 households in the study area. The 57,000 interviews provided a comprehensive single day log of travel for these households. Another major travel survey involved roadside interviews conducted on the perimeter of the study area to determine the travel in, out and through the area. Separate truck and taxi surveys were completed, along with a unique survey of the public and private transit travel. According to reports at the time, the surveys that summer were completed without a single accident or registered complaint to the police or the press. As the surveys were being completed and the analysis got underway, the region was in the midst of the national population boom that would add more than 800,000 people to the area's population during the decade. But the travel patterns that were recorded by the surveyors were occurring on a highway system that had changed little in the previous 25 years; much of Illinois was still riding on the 10,000 miles of paved roads built in the 1920s by Governor Len Small.

The region was not only growing, but was changing as well. The typical shopper now arrived by automobile and expected to get there and park as conveniently as possible. One of the first major shopping centers was Old Orchard, situated adjacent to one of the only operating expressways – the Edens Superhighway. In response to public demand, the automobiles they drove were changing also, becoming more powerful and better equipped to operate on the new expressways.

But in September of 1956 the Chicago region was not keeping up with the expressway construction of their counterparts in New York and Los Angeles, where 200 and 800 hundred miles, respectively, were built or under construction. At 21 miles opened to traffic, the Chicago region was far behind, despite expressway plans going back 25 years. But major advances were occurring in the construction of the expressway system in the state, especially in Cook County. By fall, the first contracts had been awarded for the Illinois Tollway and the Chicago Skyway. The largesse from the new interstate program was being worked into the State, County and City expressway programs and the county was sitting on a \$245 million bond issue to patch over any financing problems. Within the next decade, a majority of the expressway mileage in Cook County would be open to traffic.

The field of transportation planning was also changing, and the region could not afford to be left behind; it needed a state-of-the-art plan. The desire for this plan was both practical, as a way to attract the maximum federal dollar, and emotional, in wanting a signature plan to show the rest of the country. Showing the rest of the country would be exactly what happened, because during the time of the development of the plan and for years after its publication, academics, practitioners and the curious flocked to CATS offices to view the state-of-the-art transportation planning effort.

The following is a description of these first years, from the fall of 1955 until the plan was released in September of 1962. During that time, 175 miles of the expressway system was opened to traffic. At the initial meeting of the study, it was agreed that the 1946 plan then under construction would be the committed part of the plan and that the results of the study would be used to design and expand upon the original plan. The decision to accept the earlier plan as committed would limit and strongly influence the future plan, but was in keeping with the three-party agreement that formulated the original plan, would build the expressways in Cook County and manage CATS.

Although the participants in the joint agreement were road builders, they openly argued (or reluctantly admitted as some have suggested) that mass transit was a public responsibility that would require not

only upgrades, but also expansion. They forecast that their limited new highway system would not be able to accommodate future Cook County travel demand. This led to the decision to jointly fund a comprehensive transportation survey of highway and transit. The organization formed to conduct the survey would become the Chicago Area Transportation Study (CATS). Concurrent with the decision to go ahead with the survey, the business of building the new expressway system began in earnest. That focus by the builder's gave CATS Director Doug Carroll and his staff the time and opportunity to break new ground in transportation planning to become pioneers in the field. Based on the recollections of those involved in meetings and other formal/informal discussions on the planning and construction of this highway system, there was little acrimony within the joint committee. Minutes reveal virtually none at the CATS Policy Committee meetings. The lack of divisiveness resulted from a singleness of purpose and, as former state expressway engineer Roger Nusbaum noted, "...there was enough money to go around and keep everyone happy."

Acknowledgements

The research for and writing of this manuscript would not have taken place without the support and encouragement of Art Biciunas, former CATS Executive Director. I also need to thank CATS Acting Executive Director Don Kopec and his staff for taking care of all of the paperwork needed to obtain some financial support me in this effort.

I would be remiss if I did not mention several people: Ed Christopher, Art Peterson John LaPlante and Mike Hartigan, who always responded magnificently to my pleas for help, be it a date, name or something more obscure. They were willing to search sources for names, connect me with other people who might have information I needed, edit my often-butchered text and generously go the extra mile to help me out.

I also need to thank the people who took the time to provide me with first-hand accounts of the events, people and work that was occurring as CATS was developing their first plan. Their willingness to talk about their experiences put some "meat on the bones" of this tale and brought home to me the realization that it was really about some extraordinary people who worked together to complete the first large metropolitan transportation plan.

Organization

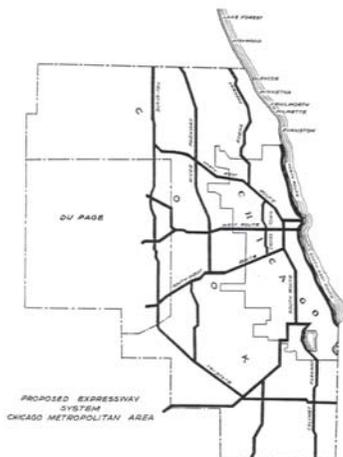
History, in my opinion, needs to be written in chronological order. Events need to be in the right sequence so the reader can make judgments on how they relate to each other or why they happen. In the narrative that follows I have endeavored to do that. There are instances where I overlap or alter this sequence to provide a more readable narrative.

In researching this manuscript, I have uncovered many details about the people and events that led to CATS' creation. I have included that material when I felt it was germane to the story I was trying to tell. My tendency is to go a bit overboard and the reader may not agree that all I included fits the criteria of being necessary to the narrative. Any thoughts on that would be appreciated. Where it was obvious, even to me, that the information was a bit extraneous, I have included it as a footnote. At the end of this narrative I have included a bibliography of my resources.

THE CHICAGO AREA TRANSPORTATION STUDY Creating the First Plan (1955-1962)

Creating CATS and a system plan

In July 1954, Bill Mortimer, the new Superintendent of the Cook County Highway Department, provided a detailed report to a special county board committee looking at issues related to building tollway routes in the county. The committee had been appointed earlier by Cook County Board President William Erickson in response to Governor Stratton's decision to build a state tollway with many miles within the county, and not all within the alignment from the 1946 plan. He began the report by calling for a complete transportation survey (later in the report he referred to it as a transportation study) which could provide the metropolitan area with a concerted plan of action. Mortimer advocated the transportation study in his report to the committee to bolster his argument that the proposed tollway was not part of the system (the 1946 agreed upon plan) and a more thorough analysis of the proposal tollway was necessary.



Mortimer went on to say the current state tollway proposal (consisting of a major route on the fringes of Cook County) appealed to bond holders due to its lower cost and reduced construction time, but left construction of urban expressways to other parties. He said the tollway plan would not suffice, because it left the county with the expense of several urban routes, while they only had enough money to complete the Congress Expressway. He wanted Stratton's Illinois Tollway Authority to consider incorporating the Northwest Tollway (from its junction with the Edens westward), the South Route and the western end of Congress into their system. This was all part of a campaign to force the governor to help secure funding so the other routes in the county could be built.

Mortimer called for the survey to review the possibilities of reserving all expressway medians for mass transit use, an idea he credits to Ralph Budd and Virgil Gunlock, former and then-current CTA Chairs, respectively. He took this idea a step further in proposing that the CTA operate service to O'Hare Airport by using the Northwest Expressway median to extend the Logan Square subway.

Footnote: According to Mike Hartigan, (former city traffic engineer, state expressway engineer and Asst. District Engineer), before Gunlock became Chairman of the CTA and was Commissioner of Public Works he opposed sacrificing the reversible lanes on the Northwest Expressway for any rapid transit expansion. After he became Chairman of the CTA, he changed his position and decided that rapid transit should be in the median of the Northwest Expressway.

Several months later, on September 9, 1954, Joseph R. Frey, President of the Greater North Michigan Avenue Association, testified before the Chicago City Council Local Transportation Committee. He was there to brief them on his association's proposal for a Chicago metropolitan area transportation survey. He said the survey was to be managed by a non-partisan committee whose purpose would be to investigate and report on means to improve commuter railroad transportation in a seven-county region. Frey said the association's proposal called for the survey steering committee to be appointed by the governor in consultation with local officials and be charged with investigating all the important types of mass transit and automobile travel. He went on to say that the study needed to look at existing transportation to and from the CBD, and develop a program for improved common carrier transport to compete with the automobile. He noted that Governor Stratton had up to that point taken no action on their proposal. Frey acknowledged that their interest in a survey stemmed from the rejection by the Chicago and Northwestern Railroad of their proposal to extend commuter service to North Michigan Avenue along the north bank of the Chicago River. Alderman Merriman, a member of the committee, asked city Public Works Commissioner George DeMent how the association survey proposal was related to the one the city planned to jointly undertake in cooperation with the county, the state and the federal

government. Without answering the question directly, DeMent noted that the joint study was intended to be much more than a simple Origin and Destination survey. It would be jointly financed by the four participants, the participants had recently traveled to Detroit to look at a similar study underway in that city, they were preparing a financial agreement which would be submitted to BPR for their share of the cost, the cost was estimated at between \$1 and 1.5 million, the study would take two years to complete and should begin in the next three months. In response to a question about why it was taking so long to get started, DeMent replied that the state law had to be changed to enable the city and county to use MFT monies for planning purposes. Also, he said the city had to appropriate the money and the BPR had to find funds within their research apportionment. DeMent was then asked, "Who actually asked you to make the survey?" DeMent told them that the agencies themselves "felt it was a very necessary thing" and the large-scale survey done in 1941 was "outdated and not comprehensive enough." He went on to say that the agencies would be "spending so much on highways that we need the information to save us dollars" and that this information would be used repeatedly in planning for future facilities. Committee member Alderman Giesler then asked, "Is this a thing that you yourself initiated, the agencies?" DeMent's response was, "Oh, that is right, that is right." (*Chi proceeding-LTC 9/9/54*)

Three months later, on December 28, 1954, the Transportation Committee of the Cook County Board approved an agreement establishing the financing, policy committee and objectives of the Chicago Area Transportation Survey. On January 26 of the following year, Chicago Mayor Martin Kennelly; Cook County Board President Dan Ryan and Illinois Department of Public Works and Buildings Director Walter Rosenstone signed a memorandum of agreement establishing the Chicago Area Transportation Survey. Attesting to the original agreement were the City Clerk, County Clerk Richard J Daley, and the state's Chief Highway Engineer, Ralph Bartelsmeyer. For the next 50 years CATS would be guided by the relationships and arrangements of this agreement, whose objectives included, but were not limited to, studying traffic facilities, conducting traffic surveys and research concerning the development of several specific areas within the Chicago metropolitan area, and the collection and review of data related to all factors affecting the judicious planning, construction, reconstruction, improvement, maintenance and operation of all types of transportation facilities. It established a policy committee consisting of the Commissioner of the Department of Public Works for the City of Chicago, the Superintendent of Highways for Cook County, the Chief Engineer for the State of Illinois and the Regional Engineer for the Bureau of Public Roads, who together would be responsible for adopting a plan of action and to see to its execution. The state was to pay 25% of the costs and the county and the city would each pitch in 12%. The remaining 50% would come from federal aid funds allocated to the state for highway planning purposes, which required a specific project agreement approved by the BPR stipulating that the state periodically invoice the city and county for reimbursement. By mutual agreement, the terms of the memorandum were to be extended for successive two-year periods after June 30, 1955 until the transportation study had been completed. Sometime early in 1955 (or possibly some time late in 1954) the transportation survey policy committee met for the first time. Because no minutes have been located, the date of and the subject matter covered at this first meeting are unknown, as are details of a meeting that occurred on September 16, 1955. Both, however, are referred to in minutes from other meetings.

The How and Why of CATS

At this point it might be helpful to speculate a bit on some issues pertaining to the creation of CATS. The first has to do with who provided the impetus for mounting this major transportation survey (or study, as it was to become). DeMent's testimony in September of 1954, if taken at face value, clearly pegs the city and county, along with the state, as the facilitators of the survey and he makes no mention of pressure or solicitation by the BPR. Hartigan notes that George Hagenhauer had "bugged" the Joint Highway Design Committee to mount such a study since 1952. When this question was posed to Roger Creighton, he was of the opinion that it was the BPR who promoted the idea of the need, in Chicago and other areas, for metropolitan area transportation studies. He said, "Ted Holmes (Planning Director for BPR) and others were very astute, experienced men; they knew that there would be billions going into the interstate system and that urban connectors would have to be built." (*Creighton interview 3/11/03*) Roger also noted that with the significant amount of planning funds available to them, the BPR could influence the states to move ahead on these metropolitan transportation plans. Although this is contrary to the CATS

origin suggested by Commissioner DeMent, most current opinion coincides with Roger's – that the Bureau was the deciding factor.

Was the BPR also actively promoting Doug Carroll and the methodology he had developed, which included an outside team of specialists, extensive testing and surveying, significant costs and a rather rigid analysis? There is no evidence of any discussion about hiring a local consultant, which would seem to have been the normal Chicago response. DeMent indicated that he and the other participants had been to Detroit prior to September of 1954. Before Dr. Carroll was officially hired, the newly-formed working committee made a visit to Detroit. Roger Creighton feels that Carroll was called to Chicago because, after developing and implementing his techniques in Detroit, he was considered by BPR to be the top transportation planner in the country. Locally, it could also well have been attractive to have a planner of Carroll's caliber come to Chicago. Roger feels that the BPR acted through the state and that the more traditional planners/builders like Bill Mortimer were less than happy with bringing in a planner from the outside. It is also possible the Cook County Highway Department, which had a long-standing professional relationship with its counterpart in Wayne County, Michigan, was also a link to the Detroit effort. George Guderley noted that the link had to do with the fact that the two counties, along with Los Angeles County, were the only county departments in the country able to let federal contracts. The Cook County Highway Department had been doing surveys and planning for 20 years; the opportunity to get a comprehensive transportation survey may have proved irresistible. Since none of the people who were involved in the decision are around today and the possibility of locating something in writing appears scant, a definitive answer on the Why and Who of CATS will probably continue to elude us.

The First CATS Policy Committee

The four men who would be responsible for one of the largest public works projects in the area's history and would be on the Policy Board for the Chicago Area Transportation Survey were dissimilar in personality and education, but were all master politicians in the apolitical world of running highway departments and public works agencies. They knew how to work with each other and the politicians to whom they reported in order to achieve their program goals and build the facilities their departments and agencies deemed appropriate.

By 1954, Ralph Bartelsmeyer, Chairman of the Policy Committee, had been the chief engineer for the Illinois Division of Highways for just over a year. He was appointed by Governor Stratton and would later be reappointed by Governor Otto Kerner. Bartelsmeyer was born and raised in Illinois, and graduated with a degree in civil engineering from the University of Illinois in 1934. Although he began his career with the Illinois Division of Highways, he spent most of the time before becoming chief engineer as a county highway superintendent. For many of those years he was Superintendent of the St. Clair County, Illinois Highway Department. St Clair County is located across the Mississippi River from St. Louis, a good place to gain an understanding of urban problems and to hone political skills. Bartelsmeyer was said to operate much like a chairman of the board in running the DOH, delegating authority to competent support staff. As the chair of the Policy Committee, he traveled from Springfield to wherever the meetings took him and presided over the committee with quiet authority. He was described as a gentleman in what could be a rather rough-and-tumble environment.

Footnote: Marshall Suloway (former state expressway engineer, District Engineer and city Commissioner of Public Works) says an example of what a gentleman Bartelsmeyer was is illustrated by the following story. In the late 1950s, Marshall was the assistant expressway engineer and unbeknownst to him, had been recommended to head the Bureau of Design in Springfield. Chief Engineer Bartelsmeyer had rejected that recommendation because he felt Marshall was more important to the department where he was in Chicago. Marshall was blissfully unaware of this decision until one day when Bartelsmeyer came from Springfield to Marshall's office unannounced while Marshall was involved in a lengthy phone call. Unbeknownst to Marshall, his secretary let the chief engineer sit outside his office cooling his heels for about 20 minutes before finally telling Marshall who was waiting. Bartelsmeyer then related to an embarrassed assistant expressway engineer what he had done and why, but told him that he would take care of him, which he subsequently did with a raise and promotion.



Bill Mortimer started as a draftsman with the Cook County Highway Department in 1925. In addition to being smart, Mortimer began doing much of the political legwork for Major Quinlan in the early '40s as the assistant superintendent. By several accounts, Mortimer actually ran the department much of the time after World War II because Major Quinlan was frequently out of the office. Mortimer was named superintendent in 1953. He was described as bluff and tough by Roger Creighton and very assertive and progressive by Bill Marston, former deputy of Chicago's Department of Streets and Sanitation. George

Guderley worked for Mortimer at the Cook County Highway Department, and provided the most complete description of him, referring to Mortimer as very politically astute and well-connected; a person who had the respect of the Cook County Board, was loyal to his employees but was also known to have a big ego. George noted that Mortimer was viewed as kind of a dreamer in the engineering community, but was quite sure of himself and was inclined to focus on politics, leaving the administration of the department to others. The author's impression of Bill Mortimer, having met him numerous times between 1950 and 1970, was that of a man very sure of himself, almost cocky, a natty dresser and comfortable as the center of attention.

George DeMent was Commissioner of Public Works for the City of Chicago, having taken over the position from Virgil Gunlock in 1954. (Gunlock was the first of four consecutive Public Works Commissioners who moved from that position to the CTA chairmanship). DeMent had begun his city career with the Department of Subways, having previously worked for the Chicago Sanitary District with other prominent Chicago engineers such as George Jackson, Dick Van Gorp, Virgil Gunlock and Ed Carossa. Mike said some of these individuals were rather notorious for raising hell in some of the south State Street gin mills after a long day in a dark State Street Subway tunnel. Commissioner DeMent, however, was described as a quiet gentleman in his dealings with and on the Policy Committee.

The initial BPR representative on the Policy Committee was Robert H. Harrison, who had been with the district office since 1920 (it was named the Regional office in 1957). Harrison had been the District Engineer since 1947. He spent his whole career with the Bureau, except for Army service during World War I. At the Policy Committee meetings, he was described as being very quiet and having little to say. By 1961 he had been replaced by Fred B. Farrell, who had 30 years of experience with BPR including several years with the Alaska Highway project during WW II. Although more outgoing than his predecessor, Farrell's background was in research and economics, not administrative/construction like the others on the committee. The regional office – not the division office – would be represented on the CATS Policy Committee until the Transportation Plan was published in 1962. This was a departure from BPR's representation on the Joint Highway Design Committee, where the division office (which moved to Springfield in 1950s; previously they had been in the same office as what was now called the region) represented the BPR. This probably reflected the interest the Washington, D.C., office had in these studies, an office which was more closely linked to the regional offices than to the state division offices in highway planning.

The Director

Doug Carroll was born in 1917 in Minneapolis, Minnesota. His father was a successful bond broker in St. Paul, but moved his business to Chicago when Doug was about six or seven years old. Doug had two brothers, one older and one younger, with the latter born after the family moved to Chicago. The 1930



census found the family living at 9716 South Longwood Drive. The house was located across the street from Ridge Park, named after the 6-mile long protrusion from the original Chicago Lake bed that provided the residents a vista uncommon in Chicago neighborhoods. The area was characterized as representing "some of the best housing in the city, with homes on large lots including several designed by Frank Lloyd Wright." (*Mayer/Chicago/386*) Carroll's father continued in bond sales with a downtown office at 208 S. LaSalle. After attending a local high school, Doug went on to Dartmouth College,

where he played intercollegiate sports and was said to have been a quarterback on the varsity football team. He graduated from Dartmouth in 1938. He served in the U.S. Navy during World War II and was

discharged with the rank of lieutenant in 1945. In 1947 he received a master of city planning from Harvard University, where he went became only the third person to receive a doctorate in city and regional planning from the School of Design.

At the time of Carroll's attendance at Harvard, the design school was under the leadership of architect Walter Gropius. Born in Germany in 1883, Gropius practiced architecture for 10 years before founding the Bauhaus (House of Building) in Berlin in 1919. The ascension of Adolf Hitler and National Socialism forced Gropius out of Germany in 1934, and eventually to Boston and Harvard University. His architectural philosophy was based on creating innovative designs with materials and methods based on the most up-to-date technology. Gropius readily accepted standardization and pre-fabrication, transforming building into a science of precise mathematical calculations. He also brought to the field a firm belief in the application of teamwork in developing a design. In 1945 he founded the *Architects Collaborative*, a design team that embodied his belief in the value of teamwork. The influence this important theorist and teacher had on the way Carroll and Roger Creighton (also a Harvard Design School graduate) went about developing innovative transportation planning techniques was in full flower during their time at CATS. "Team play is one reason why the transportation study has been so productive in inventing new techniques and so much a discoverer of new knowledge about urban phenomena." (*Creighton/UTP/133*)

While at Harvard, Carroll began to publish, which began his long career of writing about the work in which he was involved. These early writings covered issues such as public welfare in Cambridge, the development of the port of Boston, and the status of property tax in the Boston metropolitan area.

After graduating from Harvard, he took a position in Flint, Michigan, where he worked with the city planning commission and was involved in a variety of planning activities dealing with housing and downtown parking. While in Flint, he also began to analyze the home-to-work trip in various segments of the population. He would later use some of the insight he gained in Flint to refine the travel demand forecasting in Detroit and later in the Chicago study. In 1953 he was named director of the Detroit Metropolitan Area Traffic Study (DMATS) that "is usually considered to be the first comprehensive metropolitan transportation study." (*Black/Rational/27*) The Detroit plan was similar in concept to the one that emerged in Chicago in 1962, except DMATS' was based on an existing land-use plan and did not include transit proposals.

As the Detroit study was winding down in the summer of 1954, the groundbreaking nature of what Carroll and the staff had accomplished did not go unnoticed. Whether the initial contact was through Cook County, the state or BPR, sometime before September George Dement, Bill Mortimer and Ralph Bartelsmeyer traveled to Detroit to look at the DMATS operation. As you would expect, the Chicago job was not the only offer coming Carroll's way. According to Peter Caswell, about that same time Carroll had a tentative offer from Los Angeles. He feels that Carroll probably would have taken the LA offer, except they kept putting him off, so he moved to Chicago. Caswell speculates that the mystique of California in the 1950s and pressure from his wife would have got him to LA had the offer panned out. He must have had plenty of time to think about the LA offer because it was almost nine months after the initial contact before the Policy Committee agreed on a contract with Dr. Carroll.

At this point in time, Richard J. Daley was only months away from ousting Martin Kennelly as mayor of Chicago. Daley would maneuver Kennelly out of the mayor's office by getting the committeemen to select him to run in the Democratic primary, after which he beat his predecessor, who had to run as an independent in the general election. The nearly six-month delay between the council action and the signing of the memorandum is likely the result of this change in leadership.

In the Detroit study, Doug Carroll realized that "something substantially different was needed to cope with the difficulties and conflicts which had arisen in urban transportation planning in the preceding decades" and "the problems associated with the current urban transportation planning practice." (*Creighton/UTP/131*) He was convinced that the only way to plan transportation facilities for urban areas

was “as a system.” He reasoned that limited-access expressways decrease the volume on parallel routes and increased the volume on perpendicular routes with access to the expressway, so “an entire system had to be planned as a unit.” “This became the philosophy which permeated the Chicago study.” (Creighton/UTP/131)

In the introduction to his book *Urban Transportation Planning*, Roger Creighton says the following in dispensing credit for influencing what is in his book. “First, the greatest credit should go to J. Douglas Carroll Jr., under whose leadership the transportation studies gained their greatest forward movement.” (Creighton/UTP/introduction xxvi)

Creighton says CATS shaped urban transportation planning policy for at least 20 years. After CATS, there were in short order the Penn Jersey Study, the Pittsburgh Study, the Seattle Study, the Upstate New York Transportation Studies, the Tri-state Regional Planning Commission and many others. All used the planning process that was initiated in Detroit and brought to a massive state in Chicago. (Creighton/UTP/132) While it is true there were significant other inputs, “CATS brought it all to full flower with the Schneider assignment process, the Cartographatron displays, and other things.” (Creighton interview 3/11/03) The approach the staff was using was groundbreaking in nature and the Policy Committee was aware of it, which resulted in a minimum of interference from them. Creighton notes that the multi-disciplinary approach used at CATS was an import from Walter Gropius and the Harvard Graduate School of Design, via Detroit. He said the technique of judging the plan by the use of multiple goals was a product of the multi-disciplinary team that included expertise in economics, planning, engineering and operations research. He feels the Policy Committee accepted the approach and the results because they made sense to them. He does not feel the committee had a major role in developing the technique, but it did need to be convinced of the soundness of the technique and process in order to approve it. Shelly Schumacher says Dr. Carroll ran the design committee meetings and that meetings were a learning experience for some of the CATS staff that was attending, as well as the committee members.

Peter Caswell adds that Dr. Carroll exhibited substantial control over the outcome of the policy and technical committee meetings. “He was a teacher at heart, and loved to use flip charts and crayons to get his point across to help the staff and committee members to understand a particular technique.” (Caswell interview 4/1/03) He said Carroll constantly sold the groundbreaking nature of the study, making it clear that other studies were watching what was happening in Chicago, and by 1959 CATS had begun to send contract staff to work on other studies. Carroll was an early advocate with the state and BPR of making CATS a permanent agency.

Roger Creighton acknowledges that Dr. Carroll had a dominant position because of his contract with the state, the backing of the Illinois Department of Highways and the support of BPR. Put another way, Roger said Carroll knew what he wanted to do and had the money and organization to accomplish it. Creighton says that under Carroll's leadership the staff was largely able to operate with a free hand because nobody else had much experience with “computer planning techniques, which we were inventing as they went along.” He went on to say, “It was an idyllic situation for a competent staff, and we went at it with a will and extremely high morale.” (Creighton interview 3/11/03)

Alan Black says Dr. Carroll firmly believed in a rational planning process and thought planning should be made as scientific as possible. Black also said that Cantonese, in his 1980 book, cited Dr. Carroll “as an example of a successful planner who adopted the apolitical technician role.” (Black/Rational/28). Bruce Seeley also cited this apolitical technical role and its earlier incarnations in influencing national transportation policy.

First Policy Committee Meeting

At the first recorded meeting on June 10, 1955, the Policy Committee referred to a previous discussion about an agreement with Dr. Carroll. Based on a recommendation by Mortimer, they decided the state should develop an agreement using Carroll's existing contract with Michigan as an example, then provide

it to the city and the county for their concurrence at a later date. Bartelsmeyer said that all employees, except Dr. Carroll, could be carried as state employees. It was noted that Carroll would be in a position and drawing a salary for which there was no current state job classification. The way the minutes are written, it sounds like a previous discussion had occurred in which the state had agreed that the study staff would be Illinois Division of Highways (DOH) employees. The governor and his tollway commissioners were at the midpoint of a year-long hiatus in building the tollway caused by repeated legal injunctions halting the planning and construction of the system. There is no documentation on the possibility of the county or city becoming the employer for CATS. According to the minutes, there was no vote or agreement on the issue at the meeting. This would suggest the state employee decision was part of earlier discussions, most likely resulting from the state's interest in having a study done and done correctly.

The man who made the decision was Ralph Bartelsmeyer, who at this June meeting had been on the job for slightly over a year and half. Ralph was a savvy downstater, one-time president of the Illinois Association of County Superintendents and active with the American Road Builders Association. He had been appointed by Governor Stratton and knew his way around Springfield. Bartelsmeyer probably convinced the governor (who didn't need much convincing) that it was a good idea to make the CATS staff state employees, and then sold the proposal to the rest of the policy board. In author Kenney's biography of Stratton, the governor's abiding interest in dispensing state jobs and his desire to keep a tight lid on who got and kept these jobs is documented. The "governor made all major appointments and was in charge of the personnel process in state government." (*Kenny/Stratton/112*)

At this first meeting, Dr. Carroll set the tone by asking that the objectives of the survey be restated more specifically so that he could draw up the proper design. He said he "leaned decidedly toward the general city planning aspects of the study rather than just fact-finding." Bill Mortimer quickly pointed out that it should be primarily a transportation, not a city planning study. He went on to say that much of the city planning had already been done insofar as it related to highways, and he noted that the Cook County expressway system had been largely planned, was partially under construction or had already opened to traffic. Carroll responded by saying he was not interested in coming to Chicago to "merely make a transportation survey." He said the existing "expressway system could be accepted as an accomplished plan, but that the transportation survey data could and should be used for not only for the design of the expressway system, but also to plan for other needed transportation facilities." The minutes go on to say that "this broad objective seemed to be acceptable to everyone present." Frank Houska probably wrote these June 1955 minutes, and it is possible that considerable acrimonious discussion was left out, since the only member quoted is Bill Mortimer.

From the minutes, it is clear that both Mortimer and Dr. Carroll had to back off a bit from their original positions. Mortimer sounded like he was pushing for a transportation survey, while Carroll was going the opposite direction with a comprehensive plan. They both won or lost, depending on your view, since Carroll got agreement to go ahead with the transportation plan but not a comprehensive plan and Mortimer had to settle for something well beyond the survey he proposed. Based on George DeMent's comments back in September of 1954, Bill Mortimer's proposal was closer to where the city was coming from than Dr. Carroll's, but for whatever reason George apparently did not participate in the debate. It's hard to tell if Bill Mortimer expected any support from the city on limiting the scope of the work of the agency, but the city's reluctance to build any more freeways as the study progressed may have benefited from a more limited focus as proposed by the county. At that same meeting, the committee agreed that "some acceptable method of keeping the survey information up to date should be set up to obtain the full benefit from the survey in the years following its completion." A study of the type and nature similar to Detroit was significantly more expensive than the highway studies undertaken previously in metropolitan areas. It was expensive to plan a system rather than by a route or on a corridor basis. The Policy Committee surely did not fully understand the process, but they knew it was expensive and they were determined to protect their investment.

Three important decisions were made at this first recorded meeting that assured the longevity of CATS. CATS employees would, with only a few exceptions, become state employees, meaning they could have permanent jobs. The fact that the employees had a stake in the agency and the state a stake in the employees certainly had a major role in institutionalizing CATS in the years after the plan was published. Another important decision was to develop a mechanism to keep the data current. The Policy Committee realized it was making a major investment that would be largely wasted without funds for updating and upgrading the data as time went on. Although the timeliness of CATS' data would vary over the years, it generally remained the "go to" agency in the region for transportation information, which over the years further solidified its existence. This, combined with the decision to develop a plan rather than a survey, was the main reason that CATS became the region's permanent transportation planning agency. Within a year, the Policy Committee would move toward making it official.

The First Staff

It was at this time that the Eisenhower Administration seized the initiative needed to create the interstate highway system. It abandoned the earlier national bonding idea and accepted the "pay as you go" proposals from the 1954 congressional debate. The administration kicked off a national campaign to influence the public and affected industry for a program establishing the construction of the interstates as a national priority, along with the necessary planning and analysis.

By the time of the Policy Committee meeting in November of 1955, the organization of the study was well underway. Carroll had convinced a significant number of the critical staff from Detroit (actually six of the 10 staff listed on the inside cover of the DMATS report) to follow him to Chicago, resulting in a quick start to designing the study, hiring the necessary staff and getting underway.

The group that would be assembled was highly cosmopolitan, with birthplaces ranging from China to England and with educational credentials from such institutions as Harvard, Yale, Dartmouth, West Virginia, Central Michigan College and the University of London. The disciplines they brought to the study included city planning; traffic, transit and transportation engineering; demography; cartography and economics. (*CATS Work Progress Report/1965*)

One of those that Dr. Carroll convinced to leave Detroit was Peter Caswell, who at the time was working for the fledgling IBM Company and had set up a IBM 650 Computer for DMATS. Peter served in the Army Air Force during World War II as both a fire control and then photo reconnaissance officer with 33 missions in a B-29 over China and Japan. He was hired by IBM in 1949, where he worked in both engineering and marketing. When he resigned to follow Carroll to Chicago, IBM told him they expected complete loyalty from employees and he was to never to return. He would become the assistant director for administration and work programming during the first three years of the study.

E. Wilson Campbell was the chief traffic engineer for the Detroit study and also followed Carroll to Chicago. Campbell was a civil engineer; a graduate of the Yale Traffic Bureau and, prior to coming to Detroit, the traffic manager for the West Virginia State Road Commission. His father was Earl Campbell, part of the senior staff at AASTHO and an early advocate of a more technical approach to traffic forecasting. Wilson became the chief traffic engineer at CATS and would replace Carroll as director in 1962.

One of the original staff signed on by Carroll in October of 1955 was Roger Creighton, but he did not come from Detroit. He was the planning director in Portland, Maine, and was enlisted to replace Art Row, the assistant director in Detroit, who moved on to the Philadelphia City Planning Commission. Roger, like Carroll, was a product of the Harvard Graduate School of Design with a bachelor's in engineering and a master's degree in city planning. He would become the assistant director for research and planning.

Others who came from Detroit were John Hamburg, a sociology graduate from Wayne State University who would run the land use and population research; Howard Bevis, responsible for economic research, and design; and Bob Vanderford, who would become the data processing supervisor. Garrad Jones, a

cartography graduate who was responsible for graphics, also came from Detroit and would one day be the director at CATS. In 1954 he had graduated with a master's in geography after having spent the last two years of World War II on a Navy Grumman flying boat in the Caribbean.

By November, a small core staff (Carroll, Creighton, Caswell, Jones and Campbell) were temporarily housed in the State of Illinois Building at 130 North LaSalle Street. The fourth floor office they were given could hold no more than half a dozen people and was immediately adjacent to the office of Jesse Owens, star of the 1934 Olympics and a Chicago native. Creighton and Caswell recall staying there only for a number of weeks. By January, 1956, they would be at the West Madison Street office where CATS would stay until 1963.

During this time, the first new expressway in Chicago, a 4.5-mile section of the Congress Expressway between Ashland and Laramie avenues, was opened. It would be followed a week later by a 2 ½-mile section of the same expressway west of the city limits. The two would not be linked for another five years.

4812 West Madison

The building CATS moved into at 4812 West Madison was a bank building whose owner went bust along with many other banks in the 1930s. The Policy Committee had authorized Carroll to find office space, but he was bound by various state requirements, including cost. Upon arriving in Chicago, Peter Caswell was given the task of finding and equipping an office within the state guidelines. After checking out various sites on the north and south sides he agreed to look at property on Madison Street near Cicero Avenue. The property was a 1920s bank that on the outside was well kept-up with gleaming brass door hardware. The owner of the building indicated he was very interested in getting the three-year lease Caswell had to offer, but was extremely reluctant to let him go inside to inspect the interior of the bank. When Peter insisted, he was confronted with an interior filled with debris from the front to back.

Nevertheless, the location was good, parking was available and the interior could be made to fit the requirements of the study. The owner agreed to redo the interior and a three-year contract was signed. The staff arriving from the Detroit study most likely did not find working in a former bank unusual, since their previous quarters had at one time been a nightclub distinguished by a spacious men's room with 25 urinals.

In 1956, the Chicago Austin neighborhood that was to be CATS home for the next seven years was on the cusp of major degradation, a condition from which it has not fully recovered in 2006. Peter Caswell described it as a clean urban neighborhood with a mixture of residential and commercial activities. He said there were plenty of good restaurants in the neighborhood and a ladies hat shop next door that catered to the carriage trade with a selection of exclusive French designs. Roger Creighton did not have the same regard for the neighborhood and said that "the human atmosphere at the bank was exciting" but the building "was a dump." (*Creighton interview 3/11/03*) Art Biciunas, who went to work at CATS in 1961 also wasn't too thrilled with the office, but recalled that it was "a vibrant neighborhood in the early '60s, had good restaurants, no noticeable urban decay and a good number of the staff lived in the area." (*Biciunas interview 9/16/03*) John Orzeske said that when he came to CATS in the spring of 1958, it was "still a thriving middle class Chicago neighborhood with an outstanding shopping area at Madison and Pulaski." (*Orzeske interview 2/16/05*) Many of the clerical staff lived nearby and walked to work. Orzeske said the building had at one time been a Social Security office, and the man Peter dealt with to rent the building was also the owner of Howells Restaurant, located two blocks east of Cicero and frequented by the staff. John also noted that the area changed before CATS left and that it seemed to go bad overnight.

Preparing for the surveys

By January of 1956, Doug Carroll and the staff had worked up a study prospectus that identified the major work phases, a schedule and the necessary manpower to finish the work. The introduction to the prospectus noted that the region's 1.3 million motor vehicles were serving a population of nearly 6

million, who made 10 million person trips per day, of which 25% were on mass transit. The objectives of the study were to prepare a long-range transportation plan, with the parallel objective of “developing the detailed traffic inventory into a traffic library which will provide an up-to-date and easily-accessible store of travel information.” (*CATS prospectus/1956*) Bill Mortimer’s desire for the focus to be on surveying, rather than a study was still part of the mix. The document also said CATS would function in an advisory or staff relationship to the four sponsoring units of government in carrying out the assigned tasks. The study outline called for a work program consisting of data gathering, data translation, analysis and planning, followed by several months reserved for report writing. Staffing consisted of a director and two assistant directors, who would manage eight internal operating divisions. The document estimated that a maximum of 485 people were needed for the survey phase and about 50 thereafter in order to complete the study by the end of 1958. With this document in hand, Dr. Carroll sent Peter Caswell down to Springfield to work out the arrangements for hiring the vast number of people required to undertake the data gathering and processing for the study.

Peter’s job was to hire under state practices the hundreds of supervisors, interviewers, coders and clerical personnel needed. All would be state employees, some for as long as three years, but most for no more than three or four months. To hire the research staff, Carroll and Creighton undertook a parallel recruitment effort. In Springfield it was explained to Caswell that to hire the people he needed he would have to either go through or at least start with the Cook County Republican Organization. They explained that he needed to have someone who knew how to operate in this kind of arrangement and knew who to contact to get around certain things. They further indicated that the person who could accomplish this was Ann Napravnik, who happened to be up for retirement but was available for this temporary reassignment (she would stay on and become Carroll’s secretary and not retire until he left the study in 1962).

A little over a year before Peter took his trip to Springfield, Governor Stratton described the Cook County Republican Organization in Chicago as having collapsed. He made that statement in response to mid-term elections that swept Democrats to victory in all Cook County offices. Unhappy with the results, Stratton vowed to revamp the Cook County Republican Organization. The governor’s makeover attempt was well underway when Caswell headed back to begin the hiring process with the governor’s office looking over his shoulder.

Footnote: According to the Chicago Tribune, despite a low turnout in the city and a greater than expected turnout in the suburbs, the county returned to the “New Deal heydays when the Republicans only garnered the five board positions filled by the suburban vote alone.” (Tribune.11/3/54) That same election saw the future Mayor of Chicago, Richard J. Daley, elected to a second term as the Cook County Clerk and future governor Otto Kerner elected county judge.

Peter says that upon his return to Chicago, Napravnik was waiting for him in his office. After reviewing the staffing requirements, she said that in a majority of the managerial positions, two additional slots should be added. Initially, all of the staffing positions were offered to existing state employees. Since the longest employment was estimated to be three years, there were virtually no takers from existing employees. The additional positions were then quickly filled through the political process and the remainder hired through the normal application process. Peter says the individuals hired for the added slots did not become part of the work force committed to the data collection, processing and administration of the study. Roger Creighton described the hiring process this way: “Division heads recruited technical staff and this hiring was on the basis of qualifications. Lower level staff were referred to us by sponsoring agencies, probably with a little bit of politics, as is customary. We had the right of refusal, since the job had to be done by competent persons. The system worked pretty well.” (*Creighton interview 3/11/03*) Although only 46 people were on board by late February of 1956, the recruiting pace would pick up so that by April, when the survey designs were complete, staffing was sufficient to get underway as contemplated.

It was during this time that Governor Stratton, feeling the heat from Illinois Democrats who were trying to waylay his tollway, agreed on a bond issue to finance the Cook County Expressway. He had rejected

that several years earlier when Cook County Board President Dan Ryan first proposed it. With the backing of the governor, the proposal moved smoothly through the Illinois legislature, providing the county with the ability to bond \$245 million against future motor fuel tax receipts. Interestingly, because of the interstate program that soon followed and restrictions on the use of the bonds, only a portion was ever used to build the expressways and the final bonds were not exhausted until the turn of the century.

The Surveys

At the February, 1956, Policy Committee meeting, Roger Creighton reported that the work program for the next six months included home, truck and taxi and roadside interviewing, all of which would begin in the spring. When the discussion moved to budget estimates, Dr. Carroll acknowledged that the 1 in 30 sample rate which had been agreed to by all the agencies except Cook County would save about \$115,000. The committee said a final sample size should await discussions with Cook County. Although the minutes do not reflect it, apparently Cook County was withholding agreement because they felt the 1 in 30 sample size was insufficient. The author bases this assumption on a copy of a later, undated, rather irreverent, letter from Leo Wilke, the Technical Committee representative from the Cook County Highway Department. In that letter, he states that his argument for a finer sample selection was not refuted and that only under extreme pressure is he agreeing to the 1 in 30 sample rate. In a March 29, 1956, Policy Committee meeting scheduled just weeks before the surveys were to begin, Carroll and Creighton had to get the committee to sign off on excluding an income question requested by the Chicago Urban League and adding three questions on residential mobility requested by the Chicago Plan Commission.



As the final preparations for the CATS surveys were completed and the analysis began, the expressway system they were planning was about to get the financing sought for the previous 25 years. In April, the US House and Senate passed similar versions of the renamed National System of Interstate and Defense Highways. The system they approved would be financed by a trust fund created by combining a 4-cent motor fuel tax and excise taxes on tires, vehicles and lubricants. The match was to be 90% federal and 10% local. During May, a conference committee worked out a compromise on utility reimbursement and higher truck fees. In June, the ailing Eisenhower signed the bill, providing \$25 billion to build a 41,000 mile system. This funding kicked expressway construction in the area into high gear and put pressure on CATS to produce a method to provide design help in constructing the system.

In *Urban Transportation Planning*, Creighton writes: "It is impossible to convey adequately the arduous nature of the work of collecting data for a transportation plan." (*Creighton/UTP/151*) But, evidently, experienced individuals could overcome most of these obstacles, because the CATS surveys would be accomplished without major problems, on time and within budget. The first surveys to get underway were the home interview and the truck/taxi interview on April 16, 1956.

Work on the home interview survey began by creating a universe of dwellings from the electric meter card files provided by Commonwealth Edison and the Public Service Company of Northern Illinois. A sample of dwellings to be interviewed was selected based on a rate of 1 in 30, resulting in a sample size of 57,000 dwelling units. After notification of the travel date by mail, each dwelling was interviewed to obtain information on household population characteristics, mobility and data on all trips made by vehicular means. Interviewers operated from six district field offices. Interestingly, the work outline previously mentioned that was crafted in January of 1956 but not approved until March of 1956, calls for 8 district home interview chiefs, thereby creating the extra two noted by Mr. Caswell.

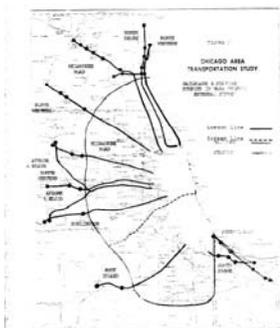
Footnote: At the March 29, 1956, Policy Committee meeting, Director Carroll released Project Report No. 1, a preliminary report on suburban railroads in the Chicago area. Mortimer said, "the report was just what he had requested and the importance of the suburban railroads was illustrated by the fact that 16 new four-lane roads would have to be built to move the people presently using the railroads into the Loop." After discussing the report, the committee decided not to release it until each member had an opportunity to review it in detail. The release of the report was discussed at the September meeting and, at Mortimer's suggestion it was still not released.

To date, the author has not been able to find a copy of that report or determine its origins. Since the mass transit external survey was not conducted until the summer of 1956, the report was definitely not a product of that survey. There is a possibility the report was linked to the Greater North Michigan Avenue Association proposal for a nonpartisan Metropolitan Transportation Committee described earlier, or as Art Biciunas has speculated, a CATS staff analysis of data previously collected by the Cook County Highway Department. Why it was not released remains a mystery as it confirmed a point that Bill Mortimer had publicly made in 1954.

As part of the administration and supervision of the home interviewers each district competed to see which interviewer would record the most trips. By September, 1956, Grace Duckwitz from district six had the lead after she interviewed an insurance man who logged 78 trips on his assigned travel day. After things settled down and the interviewing was proceeding smoothly, a sub sample of dwelling places was taken to obtain information on walking trips.

To complete the sampling of trips that took place within the study area, all trucks and taxis were sampled. The sample was drawn from the registration lists provided by the Secretary of State's office and consisted of a 1 in 15 sample for trucks and a 1 in 30 sample for taxis. The higher sample rate for trucks was to compensate for their low percentage of the total on-street vehicular movements. As with the home interview, the operators were notified by mail and later personally interviewed to complete their trip inventory.

The third major survey got underway on May 14, with the roadside interviews at the perimeter or cordon line of the study. The cordon line survey was a sample of non-residential travel into, out of and through the study area. After all roads crossing the cordon line were machine counted, interview stations were selected to permit 95% of all vehicles entering or leaving the area to have the chance of being interviewed. Roads were handled differently, depending on their volume. The interviewing was completed on September 14, by which time more than 200,000 of the almost 900,000 vehicles that passed through the interview stations while they were manned had been interviewed. Sixty interviewers toiling for 15,250 man-hours at 86 different roads accomplished this. An internal CATS newsletter claims the survey was conducted without a single accident or complaint to either the police or the press.



In addition to automobiles, the suburban railroads crossed the cordon line carrying transit passengers. This travel was documented by a mass transit external survey under the direction of Mass Transit Engineer John Howe. John was one of the only staff members who had local transit experience, having previously worked in the administrative offices of the officials appointed by the court to run the Chicago Surface Lines when it was in receivership prior to purchase by the CTA.

The railroads were all privately-owned in 1956, so a meeting was held on July 18 to brief them on the goals of the study and to get permission to conduct a survey of their passengers. The agreed-upon method was to sample inbound riders during the morning peak on 11 lines from different railroads by handing out survey cards on the station platforms. A total of 11,800 inbound passengers were counted during the three-hour peak at the stations included in the survey; 9,500 cards were handed out to commuters, resulting in 5,100 usable surveys. The survey was expanded by selecting the Hammond, Naperville and Fox River Grove stations as representative of electrified railroad, regular commuter and resort stations, respectively. (Yes, Fox River Grove was considered a resort stop.) These three stations were then counted for 24 hours and used as a basis for expanding counts at similarly categorized stations. One alternate method under consideration was to have the survey staff board the trains, count boarding passengers and conduct interviews on the train, but it was rejected as being too manpower-intensive. But a variation was used on the Chicago Aurora and Elgin, where the field men boarded the trains in Elgin and Aurora, handed out questionnaire cards and counted the number of passengers boarding prior to Wheaton.

In July, a screen line survey was conducted along the Sanitary and Ship Canal. Instead of vehicle counts, the usual method of conducting this survey, CATS instituted a major innovation by interviewing the drivers of the vehicles. Two major benefits resulted: the data would be available to study, in detail, the underreporting of home interview trips, and route information from origin to destination could be checked against the same information obtained at the home interview. Both problems had plagued former studies. In an operation unheard of in the last 30 years, the survey included south Lake Shore Drive, where 18% of 107,000 vehicle drivers who passed the station in 24 hours were interviewed. This was accomplished without accident, injury or media coverage. When the screen line was completed in August, 33 roads totaling about 650,000 vehicles per day had been surveyed under traffic conditions significantly worse than those experienced on the cordon line.

The land use and floor areas survey was begun in the winter of 1956 under the direction of John Hamburg. This was to be a major undertaking, because the decision had been made that trips could be related to land area or floor area and become a measure of human activity. The 1,236-square-mile study area with 5.8 million people would require a massive undertaking. Nothing quite like it had been done before. Roger Creighton described the situation this way:

"It seems difficult to believe, but measurement and detailed identification of land use for urban areas was quite rare in 1955. Most city planning agencies identified land use at that time only within a dozen types, and practically never conducted surveys in which land uses were measured by type throughout their entire jurisdictions. The results of their surveys consisted almost entirely of colored maps. These were useful for zoning and general land use planning work, but were intractable for any kind of analysis. (Creighton/UTP/64)

Land use was measured for the entire study area, while a floor area survey was conducted for 295 square miles, which included the city and close-in suburbs. The primary source documents for conducting this survey were aerial photographs, Sanborn maps, and the meter cards of Commonwealth Edison and the Illinois Public Service Company. Starting with the information on meter cards, each parcel was hand-coded for land use and physical description. The second step involved measuring streets, alleys, vacant land and land use to develop a block summary. The land use study determined that 562 square miles were used for urban purposes, leaving 55% of the area vacant or in agricultural use. The floor areas survey, which consisted of measuring over two million square feet of space, was conducted by 20 to 25 people and completed in March or April, 1957.

Late in 1956, an inventory of non-local streets and the mass transportation system was begun. The goal of these surveys was to measure the form and carrying capacity of the system, plus find the relationship between speed volume and density. After the inventory was completed, field studies were conducted to establish the relationships between speed volume and density in the actual ability of links of the system to carry people and vehicles.

The bulk of the travel surveying was complete by September, 1956, and the internal studies group was disbanded. The land use inventory was about 20% complete. During the course of the year, the agency had been spent over \$700,000 with a peak employment of 368 persons. That September, the study was expected to cost \$2.3 million and be completed in December of 1958.

Transportation Planning-Breaking New Ground

This section will describe some of the techniques, processes and methodology that the CATS staff employed in developing the 1962 plan. For the most part, the description will not attempt to duplicate the documentation that already exists on these pioneering efforts. The author is neither inclined nor competent to evaluate what was done, nor to judge the value of the effort and transportation planning practice. Luckily, there are a variety of excellent resources for those readers interested in the methodology developed and implemented that became known as the CATS process.

The best source for understanding the techniques that were developed by the staff and how they changed practices is Roger Creighton's book, "*Urban Transportation Planning*." Roger highlights what was done at CATS in the context of a book designed to help a wide spectrum of people understand

travel and transportation planning. The book profiles the techniques used at CATS to provide insight into the means of conducting the transportation planning process. The book not only describes the process in some detail, but also cites how methodologies were developed over time to become the CATS process and eventually the planning practice of the 1970s, when the book was written.

Alan Black's article in the *Journal of Planning and Environmental Review*, titled, "CATS: A Case Study of Rational Planning," leads the reader through a 10-step process applied to CATS' work that highlights some of the innovative processes employed. Alan, like Roger, worked at CATS during its formative period before the plan was published. Roger and Alan were there, and fortunately, endeavored to describe what happened and how it fit with then-current thinking (1970 and 1990, respectfully).

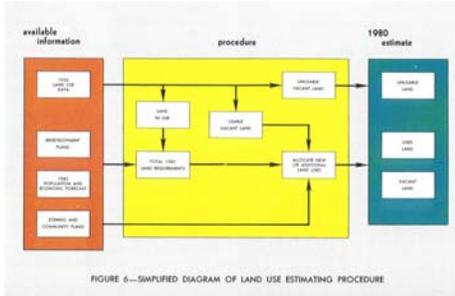
Another source for what was done and by whom is CATS Research News (ReNews). It began as a fortnightly publication in January, 1957, and was described by Art Biciunas as much like internal technical progress reports. ReNews was one of several techniques that Carroll used to get the widest dissemination of the work possible by providing a forum for debate on its merits. ReNews became the main tool for Carroll and the staff to get their methodology out to interested practitioners who would subsequently put into play many of the innovations created at CATS. Dissertations by the senior staff at national meetings were another source of information and, combined with ReNews, brought many planners to West Madison Street to check it out. Every significant activity that CATS undertook also warranted a stand-alone report that covered everything from a coding manual to the use of the Cartographatron.

By the fall of 1956, the data collection phase of the work was over and the processing and analysis of the data that had been collected got underway. That the staff would be plowing new ground in this area was evident in a statement made by Carroll in which he pointed out that the standard home interview manual (prepared by BPR in 1943 and 1944) still did not contain the final chapter describing how to analyze the data. Carroll says it was impossible to standardize and the BPR's authors of the interview manual were prepared to let the states experiment with analytical methodologies. He said the analysis in Detroit was not really new but "built on an accumulated fund of experience." (*Carroll /1956 UTP paper/6*) Carroll goes on to make the point that the relationship of land use to traffic generation is critical and must be analyzed as a first step. These observations, made in August of 1956, also expressed support for the new concept of roadway level of service and predicted that in the near future network assignments will be available to recreate traffic flow.

Alan Black notes in his 1990 article that the data processing and analysis was not completed until 1959, a year later than the original estimated completion of the whole study. The incoming data had to be manipulated – key-punched and tabulated – using state-of-the-art card-processing equipment. The summer of field work produced over 200,000 roadside interviews, and the travel from almost 50,000 home interviews temporarily overwhelmed the pioneering technology that the staff was putting in play. Compounding the volume problem was the fact that a computer to manipulate the data was not available until March of 1957. Earlier that year, Carroll had to get the Policy Committee to resolve the problem of obtaining the upgraded electrical service for the computer, which was initially prohibited by the state because the building was leased. This Datatron electronic digital computer would eventually occupy a bank vault in the basement of the building. It was installed only after dismantling the front stairway and would have its own and the only air-conditioning in the building. In describing the computer's speed, Data Processing Supervisor Bob Vanderford compared it to a mechanical desk calculator, the 1950s version of a PC. He estimated that the amount of data to be processed and the "number of calculations to be made were so great that the machine would be busy for over a year." (*CATS newsletter/9/56*) His estimation proved to be accurate, as the computer was ready to be taken off lease by June of 1958. It was retained for another six months in an unsuccessful bid to see if could be used to attract outside work.

As the need to analyze the data became more and more the major work element, Carroll realized that it was either impossible or impractical to add certain specialties to the staff through the state hiring

practices. In January, he asked the Policy Committee to rescind the restriction on consultants so he could obtain specialized mathematical or operational research skills from outside agencies. The committee agreed they could do that if necessary, but the services could not exceed \$30,000 and a contractual services agreement would have to be prepared.



As the land use inventory was nearing completion, the work of establishing a relationship between land use and travel began. Black indicates that this research was of great interest to the staff at CATS. Although it was not a completely new area of research, nothing of the proportions of the Chicago study had previously been undertaken. According to Mr. Creighton, "Land use forecasting as an overt part of a transportation planning process may properly be said to have started in Chicago." (*Creighton/UTP/178*) He goes on to say the study was reluctant to do a land use forecast, but had

little choice because no land use plan for the entire area existed. The Northeast Illinois Metropolitan Area Planning Commission (NIMAPC), the land planning agency, was new on the scene with no plan in place, and Chicago's plan was being revised and would only cover part of the area. The result was that no comprehensive land use plan was available to use as a starting point. So the staff, under the direction of John Hamburg, developed a methodology to prepare the necessary land use forecast. Generally, they used the existing plans that were available and melded them with assumptions based on past and present patterns to distribute population, employment and development density.

The Technical Committee

At the first recorded meeting of the Policy Committee in June, 1956, the members decided that a working committee, later to be named a technical committee, would be appropriate and necessary. Each of the members was to appoint a member to the committee. Their first assignment was to travel to Detroit that July to look at the techniques and procedures being used in that study. The original members were Frank Houska, from the Illinois Division of Highways (DOH); Leo Wilkie, from the Cook County Highway Department (CCHD); Ed Carozza, from the City of Chicago; and Tom Peppard, from the U.S. Bureau of Public Roads (BPR). George Hagenauer, from the district office of Illinois DOH, was added as a member sometime late in 1956. During the initial phases of the surveys, this committee does not appear to have had a documented role. However, by the fall of 1956, the Technical Committee was directed to work with the staff in reviewing the land use forecast and presenting a proposal for keeping it current. As a result, in early 1957 they supported Dr. Carroll in his bid to contract outside mathematical or operations research skills. At that same meeting, it was agreed the duties and makeup of the committee would be formalized and expanded if necessary. Voting was limited to the Policy Committee representatives on the committee, referred to as the executive members. The Policy Committee also agreed that these Executive Committee members could get together and handle policy matters between meetings of the full Policy Committee. In mid-1957, they were given the responsibility of reviewing the detailed continuing agency organizational plan that was to be prepared by the study staff. In September, Ted Morf the Illinois DOH engineer of research and planning, presented the continuing agency proposal approved by the Technical Committee.

In April, 1960, a joint meeting of the Technical Committee and Policy Committee was held. The minutes do not reflect it, but it appears that the meeting was intended to prod the CATS staff into quickly providing traffic assignments. Although the staff tried to focus the meeting on moving ahead with the plan, several of the members were asking for information to use in finalizing plans for the Southwest and North-South routes. This issue probably could not be resolved at the Technical Committee, so it was bumped up to policy.

By this time, the Technical Committee consisted of 14 members, including Wilson Campbell as the secretary. The Executive Committee members remained the same, except Fred Farrell from the regional office of BPR replaced the deceased Tom Peppard. The Illinois Division of Highways had Ted Morf and the already mentioned Hagenauer, Cook County had John Nagle and Bob Gran, the city had Bill

Marston and Bob Harris, while the CTA sent Frank Barker and Evan Olmstead and the BPR Division Office was represented by Charlie Monnier.

Although it would not be disbanded until June of 1963, the Design Review Committee eclipsed the Technical Committee's role in 1960, as the emphasis changed to creating a workable plan rather than evaluating travel forecasting or designing a continuing agency.

The Design Review Committee

Bill Mortimer proposed at the July 29, 1960, meeting of the Policy Committee that a Design Review Committee (Design Committee) be created to work with the staff solely on laying out a comprehensive highway development plan for the region to be reviewed by the Policy Committee. In the previous year and a half, since Dr. Carroll first described the traffic assignment technique, the Policy Committee had increasingly been grappling with the design of the plan. By this date, assignments had been made to four different highway development schemes and Carroll felt that more precise direction from the Policy Committee was necessary in order to proceed further. Carroll also wanted action on a series of policy positions which, when approved, would produce a guide for further development of the plan. The Design Committee began to meet within weeks of the July meeting and had its initial report prepared in time for the next Policy Committee meeting in November.

The Design Committee consisted of Roger Nusbaum, the expressway engineer (by 1962 he was deputy chief highway engineer) for the Illinois DOH, Lou Quinlan, highway engineer for CCHD, Leo Vogt, assistant district engineer for Illinois DOH, Iggy Ulak, assistant division engineer for BPR and Shelly Schumacher, civil engineer for the City of Chicago. Schumacher remembers those meetings as a learning experience for him. He said Dr. Carroll used the opportunity to teach them all a lot about land use forecasts, the models they were using and how the assignment process worked. Shelly said since they were all local engineers, their role was to take theory and turn it into a realistic plan that could be implemented.

A Continuing Agency

The first discussion of CATS becoming a continuing agency took place at the Policy Committee meeting on September 18, 1956, during a discussion of the land use forecast. The appropriateness of the land use projections from the 1939 Chicago Plan Commission study was questioned because there had been no attempt to keep them up to date. Bill Mortimer who brought up the subject, indicating that the data grew old quickly and that a plan for preserving and updating the information should be in place as the original data was collected. In discussing the agency's finances, Dr. Carroll indicated that the Technical Committee had expressed support for a continuing agency. When Bartelsmeyer questioned Harrison about federal participation, he was told BPR would approve a new project agreement for such an agency. At the meeting, \$100,000 was set aside for the continuing agency.

The subject was discussed again at a meeting in mid-1957, centering on a previously mentioned continuing agency proposal distributed by the Illinois DOH. Harrison reaffirmed the bureau's interest in this kind of organization. The committee agreed that the continuing agency should be set up as a special part of Illinois DOH. The Policy Committee asked the study staff to develop a detailed organizational plan, including position descriptions and salaries, and to have that reviewed by the Technical Committee and forwarded to the Policy Committee for approval.

At the September 5, 1957, meeting, the continuing agency report was presented and discussed by the Policy Committee. The report prepared by the staff identified 53 major areas of work. The most important function was the custody of transportation data CATS had collected and to provide a platform for maintaining and updating the information. The staff would work for the benefit of the decision-making agencies. Other work included appraisal and revision of various transportation plans for the area, determining construction priorities, relieving the Traffic Subcommittee of operating research tasks, accessing the feasibility of mass transit proposals and, last but not least, testing alternative civil defense evacuation routes. Research on traffic and planning, general studies of economics and finance,

computer applications to highway and traffic problems and physical research were also proposed as areas of work for CATS.

Two different organizational charts were presented at the meeting. One reflected the thinking of the state, which called for 39 staff, including the director, and the inclusion of the District 10 research and planning functions as part of the continuing agency. The DOH proposal also had an inter-agency committee in lieu of the Policy Committee, but other than Mr. Harrison assigning his responsibility to a member of his staff, the two were alike. A CATS staff proposal did not include the district planning and research functions or any change to the Policy Committee, and included two assistants reporting to the director. The committee agreed on the state's consolidation idea after it was assured that the staff size was adequate to perform both functions. This arrangement was approved at the meeting, along with a financial formula that had BPR picking up 72% of the total cost. Some or all of the participants must have had second thoughts, because the approved plan was not mentioned again nor did it get implemented.

At a late 1957 meeting of the Policy Committee at the Cook County Highway Department offices, the subject of staffing the continuing agency was again discussed. Much of the discussion centered around the director and his role, although Mortimer indicated that any staffing discussions were premature until the final product was in hand. Dr. Carroll was questioned about his future plans and interest in remaining as director. The minutes indicate he was somewhat ambivalent, but said he was in no hurry to leave and would not before the project was finished. They agreed to open up some of the proposed positions immediately to current employees who would fit into a continuing agency. The position of the traffic counter man was deemed especially critical (other than his first name being Pete, the identity of this indispensable counter man is unknown).

At the same meeting, Carroll brought up a special situation relative to CATS' seven contract employees. He said most of them would not fit into the continuing agency. The seven had submitted a proposal for doing the origin and destination study in Pittsburgh, with the understanding that it could not interfere with the Chicago work. The field work was to be early in 1958 but the analysis in 1959 after the contemplated completion of the CATS study. He felt this was important to these employees because the work was winding down in Chicago and this would provide them with future income. The Policy Committee agreed to a modification of the contracts to permit them to do this, but left Carroll responsible for granting them leaves without pay and to provide a monthly report on their excused time. At the only Policy Committee meeting held in 1958, during a discussion of the continuing agency, the committee agreed that Dr. Carroll could devote up to four days per month on outside consulting work and his present contract would be extended as presently written. In closing the discussion on the continuing study, Carroll indicated his intention of asking Campbell and Hagenauer to serve as his assistants. This prompted Mortimer to caution him to carefully specify the duties of each to avoid conflicts. As far as the PC minutes go from this point on, Dr. Carroll's status changed – he was now listed as staff rather than a committee member, as had been the case previously. Since the change is not mentioned in the minutes, it is possible that Carroll made the decision to reflect the fact he was now a part-time consultant.

After losing all of 1955 to litigation, the Illinois Toll Highway Commission made up for lost time by building the entire 260-mile system in 27 months. The final section opened in December, 1958. It would be two years before major portions of the Cook County expressway would connect with the tollway.

Although the committee danced around the subject several times, there was no further meaningful discussion of the form and content of a continuing agency until after the plan was released in September, 1962. Several times it appeared on an agenda of the Policy Committee, but it was always held over for discussion at a later time.

Creating the Plan

It was not until January, 1959, that the Policy Committee began to be engaged in the decision-making necessary to create a plan, a process that would take about four more years due to the innovative nature of the work and the reluctance of the city to include the Crosstown Expressway in the plan. It began with a presentation by Dr. Carroll which included some of the first cartographatron displays showing vehicle and transit trips. He went on to talk about the forecast land use and the extent of development for 1980. He predicted a 50% increase in population and a doubling of passenger cars to accommodate an 80% increase in vehicle miles traveled by 1980. He said transit was about 25% of total person trips, but if the number of transit trips was held constant for 1980 they would contribute only 14% of the total person movements. Carroll said CATS predicted a 25% increase in traffic volumes in Chicago and a whopping 200 percent increase in the suburbs.



Footnote: The cartographatron was a direct result of a request by CATS to the Armor Research Foundation to provide a means of displaying desire lines produced from the 4800 quarter sections in the study area. The institute responded with a proposal for a machine that would draw a line on the face of a cathode ray tube and record it on a photographic plate over time. It recorded nearly 3,000 trips per minute. The device could display the region's 10 million daily trips in about four hours. Although it failed to provide a measure of trip density, it yielded "as fine grained a picture of metropolitan travel as anyone could desire. And with this accurate mental picture we could see better how a system should be designed." (Creighton UTP/ 36)

At this point, Bill Mortimer appeared to interrupt the presentation to ask if CATS could help the county to make several traffic assignments. Carroll responded that the data sets they were working with required a major IBM computer preparation and tabulation, so he preferred to concentrate CATS' efforts on distributing and assigning traffic to develop the plan. Mortimer apparently did not hear him or failed to understand, because he then asked for a specific traffic forecast for the intersection of Stony Island Avenue and 103rd Street. Bartelsmeyer intervened by asking Carroll to have somebody sit down with the county staff and try to resolve the problem.

Dr. Carroll went on to describe the assignment technique that required the use of the large IBM computer. He indicated better results were available using the CATS technique than any other method currently in available in the country. When asked about testing other agencies' plans, Carroll suggested this was not profitable and that the time would be better spent testing the schemes needed to develop a plan.

Most of Volume I was at the printer in time for the next meeting in March, with the maps and illustrations under review by the Technical Committee. At this meeting, for the first time, the results of the traffic assignments were presented on maps to the Policy Committee. Dr. Carroll provided a detailed explanation of the output, explaining this was the first time it was possible to review traffic assignment to a network of streets as large and as complex as the Chicago area. Carroll said CATS would next load the 1980 trips onto a network that included the committed expressway network and be referred to as Scheme A. He felt the output could be used by the four agencies for design and operational problems, since it would closely duplicate the traffic actually distributed over the streets and expressways. Roger Nusbaum asked for the approval of the Policy Committee to use the data produced to assign volumes and estimate ramp loads for the Southwest Route and the West Leg of the South Route. Roger further requested, and Carroll agreed, to present the flow maps and describe the assignment process to the Joint Expressway Design Committee. Carroll finished the discussion by indicating the staff was still not satisfied with the assignment process. The committee told him to keep on working.

At the next meeting, in June, 1959, Carroll indicated he had made his presentation to the Joint Expressway Design Committee and provided data to the committee for the Southwest and the West Leg. He said there seemed to be no further requirements that would adversely affect work progress.

Both expressways were still a ways off. Major work would not begin on the Southwest Expressway until 1963 and be opened the following year. The West Leg followed with construction during the late 60's and completion in late 1970. As the west leg neared completion, Cook County Board President Richard Ogilvie declared that the county was shifting its priorities to construction and expansion of arterials, bringing nearly two decades of intense expressway construction by the county to a close.

He went on to describe the difficulties that they faced in assigning traffic to the complete system and estimating the future distribution of trips. Dr. Carroll acknowledged that significant time had been lost in developing a plan, but that this was the natural result of trying to improve the quality and techniques of traffic assignments and transportation planning. He went on to say that while it is difficult to evaluate the appropriateness of spending the time, he felt without such improvements the study would not have the quality originally intended. The staff estimated that Volume I would be in the hands of the Policy Committee by September and the final volume ready for release in the spring of 1960, although neither was to happen. It was not until January of 1960 that Volume I was finally ready for public distribution. As a final item on the agenda, Carroll's contract was again renewed, as was Roger Creighton's. Roger was given the title of planning consultant to the urban research section of the Illinois DOH.

In the meantime, the staff was working with the Technical Committee to test a scheme that went beyond the committed system. Scheme B was the result. It added 39 miles to Scheme A with North-South routes in the Cicero and Western Avenue corridors. Members of the Technical Committee made the case that Scheme B, at 327 miles, was a more realistic minimum plan because it dealt with the much-needed crosstown facilities in Chicago.

At the January, 1960, Policy Committee meeting, Dr. Carroll described Scheme I. The previous fall, traffic had been assigned to a plan that consisted of expressway spacing at approximately three-mile intervals within the dense central area, and the proposed construction of junior expressways at four- to five-mile intervals in the suburban area. This scheme significantly increased the amount of mileage, with 681 miles of junior and regular expressways. Dr. Carroll indicated modifications to the plan had been made at meetings with representatives from Cook, DuPage and Lake Counties, the City of Chicago and the Illinois DOH. This plan represented the estimated outer limit of mileage of express type facilities in the study area as determined by the staff.



But the city had other ideas and prepared an alternate plan that was tested by the CATS staff that same fall. Scheme J, as it was called, was identified as being very “different in kind as well as magnitude from the other plans” (*Volume III/58*). It contained a large number of intermediate facilities spaced at one- and two-mile intervals within the city and at three-mile intervals in the suburbs. It contained nearly a thousand miles of routes, which Volume III notes, “if built at true expressway standards” would cost \$5 billion. (*Volume III /60*) This plan was viewed by the staff as an

experiment to test the effect on the network of an extensive system of intermediate facilities. These so called “high type arterials” were being vigorously promoted by Chicago Assistant Commissioner of Streets and Sanitation Bill Marston. He still feels the city “would have been better served by an extensive system of this kind of roadway.” (*Marston interview 6/1/03*) Black, in his article, cites as an accomplishment of CATS the refuting of the city contention that the upgrading of arterials was a plausible alternative to expressways. Carroll made it clear that he felt the costs in Scheme J provided by the city were questionable.

Both schemes had been previously reviewed by the Technical Committee and were discussed at this January meeting at great length. At the meeting, Carroll cautioned that these plans had to be compared carefully, a position that Mortimer agreed with wholeheartedly, reflecting his commitment to expressways and his feeling the city approach was unrealistic. The committee wanted to make sure that, in addition to construction and travel cost, other economic evaluations such as the effect of grade separations on land values and tax revenues were considered. They may also have recognized this for what it was: the city

was beginning to have second thoughts about building more expressways beyond that to which a commitment had already been made.

The use of these plans or schemes to compare measures of network performance was a point continually emphasized by Carroll. He felt that wherever imperfections were in the trip distribution formulas and other techniques, they were nullified by holding them constant; therefore the only variable became the network itself.

On another issue, Mortimer and Carroll agreed when Farrell asked about alternate plans being presented in Volume III. They said a single plan was preferred and it should be one in which the highway program was balanced with mass transit facilities. At this meeting, the committee also agreed that staff needed to undertake an evaluation of future funding sources to ensure the plan was obtainable, and they finally squashed the staff's idea to create a color movie depicting the development of the plan.

Members of the Technical and Policy Committees, at a joint meeting in April of 1960, began to show some irritation that they did not have a plan in hand or an assignment that they could use in designing the remaining Cook County expressways. Early in the meeting, Roger Nusbaum said he could not get BPR to approve the Southwest Route design without locations and volumes for the major roads that the route would cross. He noted that once these decisions were made, the future location of these crossings and interchanges would have been established and would not be changed based on results from the study. Mortimer made a similar point about north-south routes. During the discussion, Ted Morf pointed out that Evanston had already asked for assistance in planning its major street system and he expected other communities would follow suit in order to integrate their street planning with the new expressway system.

Dr. Carroll's reticence to be diverted from the goal of testing alternative plans was based on the time-consuming nature of this process. The "improved testing mechanism" developed by the CATS staff "was a hand-tailored process and each plan was tested individually, coded by hand and checked by machine." (*Creighton/UTP/264*) Although the computer assignment only took hours, it required elaborate preparations and "each computer assignment took at least two months." (*Creighton interview 3/11/03*) To save money, the actual testing took place on weekends using the largest available computer, located in Cincinnati, Ohio. Several people have described how Mort Schneider was packed off on Friday with printouts and magnetic tape so he could return by Monday to let the mapping process begin. This step was done by hand "and each map took weeks of effort by a crew of skilled and experienced clerks and draftsmen." (*Creighton/UTP/259*)

That evidently led to a discussion of the costs of building urban freeways or at least the north-south routes in the city. Carroll took this opportunity to again question the costs in Plan J that were provided by the city. In a handout for the meeting, he suggested that the costs the city supplied were doubtful as properly representative and that its "apparent costs advantage over scheme I may be illusory." (*Volume III /59*) Dr. Carroll's panning of the costs provided by the city for this plan could not have sat that well with the city staff and administration. This could have been the beginning of the city's long-standing concern that CATS was not as responsive to them as it should be.

This Policy Committee meeting resulted in two important decisions. The first was that the Policy Committee, at the urging of Carroll and with the backing of Mortimer, agreed that a network greater than Scheme B should be tested and analyzed. They did not agree that the final published plan would contain a more extensive system, but moved in that direction. It seems likely that until this time the committee members, at least some of them, were considering having the staff test additional schemes but not publish a plan beyond the committed system that had been public knowledge for much of the past 15 years. The output from the testing would be used to design the next level of expressways.

The other decision was that the design of the Southwest Expressway and others would move ahead without any additional input from CATS and the traffic assignments that were being prepared.

Bartelsmeyer asked Carroll to expedite the plan quickly so it could be used in making some of these design decisions. But DeMent and Mortimer rather abruptly declared that they could resolve the design problems without any more traffic information from CATS. That decision effectively removed CATS from any role in the design of the committed expressway system because the Southwest was the only route left to be designed. At this April meeting of the Policy Committee, they voted to approve printing 7,500 copies of Volume II and to develop a cost figure to be used in selling copies of that volume.

Based on the direction provided at the April meeting, the staff spent the rest of the spring of 1960 working on a new scheme that contained more freeway mileage than Scheme B, but less than Scheme I. It was called Scheme K. Roger Creighton provided a detailed review of the reasoning leading to this plan at the meeting. He said the forecasted level of travel demand and network design standards controlled the design of the plan. He began with a reasoned description of the measures that were used to develop 1980 travel demand, including the logic behind holding transit ridership constant rather than predicting any growth. In describing the system design considerations, he identified the kind of facilities, the distribution of the facilities and the relationship of system spacing to cost. He also described a list of specific network design criteria that had been developed with the Technical Committee.

He described Scheme K as one in which all of the facilities were designed to interstate standards. But Leo Wilke, who was in the audience at the meeting, questioned the decision of discarding junior expressways in Scheme K. Although some of the disagreement appeared to be one of definition rather than philosophy, Commissioner DeMent said he doubted that junior expressways could be developed in the city. They preferred to upgrade their arterials to carry 20,000 to 25,000 vehicles a day. Leo remained adamant that the county intended to keep the junior expressway idea alive until the county had decided to dispose of it. Since the junior expressway had always been considered Mortimer's baby, Leo knew he had to make the argument to include them in any alternative.

About that June meeting, Roger Creighton says, "I had stayed up the night before until nearly 2 a.m. to hone the presentation. It argued that we were dead serious about transportation costs and the productivity of expressways and that the warped grid, which eventually became the plan, was the best solution." (*Creighton interview 3/11/03*) He feels the Policy Committee respected and agreed with that position. He goes on to say, "Doug told me later that it was a red hot talk, which pleased me because I had so much respect for his opinion."

Now the committee began to look at these plans in terms of the real world. The first one to ask about the specific routes represented on the map was Commissioner DeMent, who earlier and later would be concerned with the specificity of any plan that was to be published. During this discussion, the location of such routes as I-55 from the Tri-state Tollway to Harlem Ave, I-90 (now I-290) near 53 (the expressway in the Dempster Street Corridor went straight west to I-90 creating an unusual triangle intersection of three expressways), the 67th Street connection to the Skyway and a host of problems with the network in the Southwest area due to the Cook County Forest Preserve holdings were discussed and agreed on. After describing some of the contacts that had been made with County Superintendent Dold in DuPage County and Amstutz in Lake County, the committee gave the staff the go ahead to fine-tune scheme K, have it reviewed by the Technical Committee and make the 1980 traffic assignment.

During the meeting, Lou Quinlan (who was representing Bill Mortimer), and Leo Wilkie reverted to the old Cook County position that CATS should be collecting the data and providing it to the highway agencies for them to do the plan. However, DeMent had trouble with returning to that idea. He responded that the Policy Committee, not individual members, should test plans and determine the future system. He may have been concerned that Mortimer would try to build unwanted junior expressways in the city. Ted Morf argued that they needed a common plan in order to coordinate the studies that would be coming from the individual communities and counties. The Policy Committee's only response to the county was to suggest that the staff had to continue to work with the participating agencies in a very close and coordinating manner.

At this point in 1960, Volume I had been published the previous year, Volume II was scheduled to be published the following month (July) and, according to Dr. Carroll, the first four chapters of the final report were written and ready for the printer. More than two years from the publication of a final plan, all three volumes were essentially written, except for the concluding chapters in Volume III.

Regarding Volume III, Commissioner DeMent said there was no question that CATS should present the truth in the transit forecast in Chapter 5, but he was nevertheless unhappy with the way it was worded. Dr. Carroll responded that he anticipated that CTA Chairman Gunlock's appraisal and comments on Chapter 5 would set the tone for the chapter. He added that Gunlock was pretty much in agreement with the forecast that the staff had developed.

Unlike many areas of the country, the CATS transit planners did not begin work with a clean sheet of paper. The region already had an extensive CTA and suburban bus and rail system. In addition, the CTA had recently developed a transit plan that had to be evaluated. The staff's role was to develop a forecast of future transit use and determine how to expand and reconfigure the existing system to fit this future travel.

Both the Chicago and suburban systems were in many ways different than those that emerged from World War II. The Chicago, Burlington and Quincy (CB&Q) and the Chicago and Northwestern (C&NW) Railroads had begun the replacement of aging commuter equipment with diesel locomotives and bi-level, high-capacity passenger cars. And President Ben Heinemann at the C&NW had instituted push-pull operations, adding another level of efficiency and making his railroad's commuter operations profitable. Meanwhile, the CTA was beginning to feel the positive effects of their buyout of the Chicago Surface Lines, the Chicago Rapid Transit company, and later, the Chicago Motor Coach Company. Their efforts to replace streetcars with the more flexible buses, thereby eliminating major infrastructure costs, replace aging rail cars, modernize their rail operations, eliminate underutilized and duplicative bus and rail lines as well as the elimination of all two-person crews on the surface lines while routing buses to better feed the rail system, began to contribute positively to their bottom line.

In 1956, 24% of all trips in the region were made by transit and 71% of all Chicago Loop trips were by transit. But future forecasts of transit's ability to compete with the automobile were ominous. Authors Krambles and Peterson put it this way: "Transit seemed to be locked in a market ever-shrinking in volume, yet ever-growing geographically. In the meantime, inflation pulled wages upward faster than technological change could improve productivity." (*Krambles&Peterson/CTA at 45/35*) In developing the transit plan, Roger Creighton says a basic assumption was that mode choice could be determined independent of transit and auto level of service because of the extensive rail and bus system that existed in the region. This led to a decision to create an independent transit estimate for the CBD and another for all other, or what was called local transit trips. The result was a predicted 5% increase in CBD trips based on the expected increase in floor area for that area. The local transit trips were forecasted to increase by about 50,000. Much of the latter was projected to come from the CTA's non-CBD ridership.

The plan that the CTA chairman was reviewing was a reduction from the one proposed by the CTA in their 1958 "New Horizons" report. Four networks were tested by the CATS staff, including the existing system, the 1958 CTA plan, a modification of the CTA plan (extending and reactivating the two recently abandoned interurban lines and replacing the proposed Crosstown rail line by reactivating the Paulina CTA elevated line), and the recommended plan (which replaced the Crosstown rail line with a busway and avoided an estimated \$75 million in construction costs by eliminating one bus and two rail subways in the CBD as proposed in the 1958 CTA plan). The narrative in Volume III lauds the existing two Loop subway lines as providing an excellent distribution system, but notes that the forecasted demand will push them to the limit of their capacity.

The state and city expressway builders were experiencing funding problems in 1958 due to a national recession. The county offered to share its bond issue money, but a quickly implemented state bond

eliminated the need to do that. The county and the other expressway builders attempted to counter the crisis by letting as much as \$18 million in contracts in a single day.

Plan Details and the Crosstown

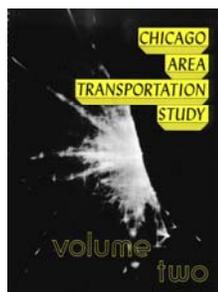
In July, 1960, the Policy Committee met, evidently with the sole purpose of discussing the geographic or mapping detail of the final plan. Bill Mortimer and Commissioner Dement were both very “concerned about producing a plan that showed expressway locations on the map.” DeMent asked, “why couldn't the study merely just sum future desire lines along general corridors?” Dr. Carroll argued that the traffic assignments that were being done used the actual street system and its capacity and, therefore, the only logical way to represent the proposals was to overlay them on the existing street system. Farrell suggested that shaded white bands on a general map might be sufficient. No final decision was reached, but the county agreed to furnish to CATS all information currently available on expressway locations, including geometrics and cost estimates. If the county and the city were serious about the plan being too detailed, it's hard to understand why they would agree to provide the staff with that information.

At a second meeting in July, the committee was given the final results of 1980 traffic assignments to four test networks: the existing planned expressway system including four-lane all-arterial streets and Schemes I, J and K. After describing the networks, Creighton told the committee it was important to be able to measure performance of these plans against a set of objectives that was understandable and useful to the agencies responsible for building expressways. Dr. Carroll followed up on this by presenting a series of policy positions that, after some discussion, was tentatively approved by the committee, but in reality given to the soon-to-be-created Planning Design Committee to review.

The paper that Carroll presented began by highlighting the staff prediction that vehicle miles of travel would double by 1980 while vehicle registrations grew to 3 million and that a comprehensive system of expressways must be available to handle this demand. It went on to note the new system must be designed and laid out to provide the least annual cost to the region for all vehicular traffic. It must be laid out as a complete network and designed to draw the maximum amount of through traffic off arterial streets to the new expressways. Basic design principles should include: complete movements at all interchanges; avoidance of T interchanges; two facilities should not be reduced to one in areas of increased density; and entering and leaving expressway lanes should be balanced. The basic location principles identified in the report were that the space between expressway, railroads and other natural barriers should be used for industrial activities; community internal traffic should not be split by expressways; expressways should be on new alignments rather than rebuilding existing major arterials.

On several occasions during the previous year, Dr. Carroll had expressed a need to work closely with the staffs of the sponsoring agencies. Evidently in response to this concern, Mortimer and DeMent proposed the development of a planning design subcommittee whose “sole task would be to work (with the CATS staff) in laying out a comprehensive highway development plan for the region for Policy Committee review.” It seems that the committee had belatedly come to the conclusion that the CATS' staff work was

going to result in a plan, so they better get directly involved in making sure that plan was buildable. As recently as the previous April, the county still was arguing that it should simply get updated assignments from CATS for use in designing the remaining expressway system. It's probable that sometime during the spring or early summer the state persuaded them that the effort was going to result in more than a data bank.



By November of 1960, Volume II had still not been published, despite the cover having a date from the previous July. It would finally be released to the public in December of 1960. By that date, the Design Committee had been meeting with the CATS staff for several months. According to a report given by Dr. Carroll, the Design Committee had prepared a variety of geometric designs for both arterials and expressways. Their conclusion was that in network solutions, traffic relief would best be provided by these (fully grade-separated) higher type designs and that arterial widening should be undertaken only where traffic could not be economically

diverted onto more efficient roadway types. Their recommendation was, therefore, that any expressway facilities in the plan be assumed to be a fully grade-separated design.

This recommendation caught the attention of Commissioner DeMent, who noted that the subcommittee had not made recommendations regarding thru lane over-passes. He asked that an analysis be made of several major city arterials, such as Western and Ashland, to evaluate the performance of the thru-lane overpass concept. The staff was directed to provide a report to the commissioner as soon as results were available.

After some discussion, the committee also agreed that a careful analysis was necessary when comparing large capacity eight-lane expressways to multiple four-lane expressways. After reviewing some land use information related to system planning, the committee told the Planning Design Subcommittee to go back to work in laying out an acceptable expressway plan.

Early in 1961, Wilson Campbell made the report requested by the Commissioner DeMent in a presentation to the Policy Committee. It evaluated different alternative methods of improving traffic service in the north-south corridors of Ashland, Western and Kedzie. The comparison was between no construction, a thru-lane overpass system and a full eight-lane expressway. The report concluded that the thru lane overpass did not provide the speed, safety and low operating cost of the expressway, nor would the initial construction cost be less than the expressway.

At the same meeting, a memorandum was handed out to the members of the committee that represented the thinking of the Design Committee for a new network that was constrained by the policies and principles adopted the previous October. It would be identified as Scheme L, the first in a series of refinements that led to the approved L-3 plan. It differed from the previous Scheme K, with more than 60 additional expressway miles and with more consistent spacing "to achieve a more efficient design in terms of placement and usage." (*Vol III /60*)

It was at about this time that two of the major Chicago expressways would open to much fanfare and media attention. In October of 1960, 14 miles of the Congress Expressway were opened, and a month later, 16 miles of the Northwest Expressway. Both expressways provided uninterrupted travel from downtown to the county limits with direct connections to the two-year-old Illinois Tollway.

Shelly Schumacher, who was on the committee, says that at this point the committee had been meeting almost weekly for six months with everyone going through a learning process, with the exception of Dr. Carroll. He says their role was to marry the spacing principles developed by the CATS staff to the committed system. Another part of their assignment was to make sure that the recommended plan would be buildable. Shelly also thinks that intertwined with this was a desire on the part of the Policy Committee members, through the Design Committee, to protect their turf and maintain the delicate balance of the Joint Expressway Design process.

A little over a month later, in March of 1961, Commissioner DeMent advised the Policy Committee that there was substantial disagreement within the city over the advisability of building additional expressways. For the time being, the city would be unable to officially comment on the plans as they were being developed. Nevertheless, the development of the plan moved ahead, with 1980 traffic assigned to two networks, identified as L and L-2. The latter scheme differed in the alignment of what is now I -290 from North Avenue to the Northwest Tollway. Dr. Carroll estimated that these systems would cost about \$2 billion to complete. He said that fit with their current level of construction of about \$100 million per year to achieve build-out in 1980.

Evidently they did not feel that the position the city had taken would substantially delay adoption of the plan, because at Dr. Carroll's suggestion they approved a draft letter of transmittal for Volume III. Fred Farrell (who replaced Harrison as BPR representative in April, 1960) announced plans to bring Rex

Whitton, President Kennedy's newly-appointed administrator for BPR to the forthcoming meeting, where the plan would be unveiled. Little did they know this event was six meetings and a year and a half away.

Six months later when the committee next met, much of the meeting was again devoted to discussing the means for releasing and publicizing the final plan. DeMent asked that the report prepared by the staff (now referred to as the Crosstown report) be kept under wraps and used for internal purposes only. The committee told the Design Subcommittee to look at options for staging the construction of the L-3 Plan. At this point, the Chicago Plan Commission was reviewing the first five chapters of Volume III thanks to DeMent, but Paul Opperman, director of the new Northeastern Illinois Metropolitan Planning Commission (NIMPC), was in the dark on the work of the study and its plans. Bill Mortimer offered to arrange a meeting to brief the director and correct that situation.

Neither the public nor the media had been invited or attended any of the Policy Committee meetings, yet the work of CATS was not unknown. Hal Foust, who had the transportation beat for the *Chicago Tribune* wrote several expressway-related articles in March. In one article, he quoted D. Grant Mickle, BPR deputy highway administrator, as saying the new interstate system was about 50% complete and had whetted the public's appetite for more expressways. In another article, he quotes Illinois Public Works and Buildings Director Payes as saying that California was on the way to building 12,000 miles of freeways, that fears of social and property damage from urban freeways had proved groundless and that the 1,600 planned miles of freeway in Illinois should be doubled. In both of these articles, Foust mentioned the CATS report that was due out in the next few weeks and how it would influence future expressway decisions.

Either at the insistence of Dr. Carroll or one of the members of the Policy Committee, a meeting was held in April of 1962 (the date on the inside cover of Volume III) in the hope the city could be persuaded to agree on a release of the final plan. Seven months had passed since the last meeting, but the city's position had not changed. Commissioner Dement said the report included facilities he could not support. He said he might be able to support some alteration to the maps. Alternatively, he proposed that the report be submitted by the CATS staff and have no official status – a working document. Evidently, the commissioner could have supported the plan if the Crosstown and some other routes were eliminated. Mortimer argued that it wasn't appropriate to drop routes that are ultimately shown to be needed, and he could not abide by the suggestion that this work was simply a staff report. The committee agreed that the release of Volume III would have to await resolution of the city's issues. Mortimer had now shifted his position 180 degrees in supporting the one-plan-for-all position. His reasons may have been linked to a desire to keep the Crosstown in the plan, or possibly he was persuaded by the state, where a closer relationship between Cook County and Governor Otto Kerner's new Democratic administration was likely.

Another short meeting was held in May and Commissioner DeMent's objections were again discussed at some length. Although the city did not seem to have made any concessions to release the plan, Dr. Carroll appeared to feel closure was imminent. He talked about the fact that the CATS work and his contract were nearly complete and that it was time to think of the study as a continuing agency with new research and service responsibilities.

When the committee next met in July, Commissioner DeMent indicated that "the city still had some concerns about the report and needed more time to review the recommendations." He must have identified a timetable for the review, because the committee agreed to meet again in two weeks. They also decided to release the report at 11 a.m. (when a date was determined), with a formal press conference to maximize the coverage in the numerous metropolitan newspapers then in existence. They also established that the Policy Committee would control the release and "it would not be presented at any luncheon sponsored by a civic group." It would seem that after all this work the committee did not want to share the credit with any of the media-savvy civic groups. They also approved the preparation of a small brochure to summarize Volume III, but decided that the samples submitted by the staff needed help – something that would be accomplished by the publicists from the city, county and state.

The Plan Is Released

Finally, at a meeting on July 20, 1962, Commissioner DeMent reported that he had completed his briefings of city officials and that, although there remained many different views within the city, he was now proposing releasing the report immediately to all city departments for their review. Upon hearing this, the committee agreed that they would meet at 11 a.m. at the earliest agreeable date to release the report. Bartelsmeyer indicated that he needed to arrange a briefing for Illinois Department of Public Works and Buildings Director Bill Payes and Governor Otto Kerner. It was suggested that the press be invited to attend the Policy Committee meeting if they wished. No journalist had been invited to any of the meetings up to this point.

Footnote: Although it does not appear to have been discussed, the agenda for the first July, 1962, meeting has an interesting item worded as follows: (5) Problems of staff and pay (a) Possibilities for staff (b) Direction of changes and need for some clue from Policy Committee. It sounds like Dr. Carroll was reacting to the frustrations of the staff in trying to figure out when the plan was going to be published and what they were going to be doing when that event occurred.

At this stage, the construction of the Cook County expressways was well underway. The South Route, now called the Dan Ryan Expressway, was only months away from opening and the Southwest would follow two years later. By 1970, the expressway system as planned in the 1940s would be generally completed except for the Crosstown. Although portions of tollway were certainly on a different alignment than shown in the 1940s plan, the general outline of the earlier system was now on the ground.

On August 22, the *Chicago Tribune* reported on the pending release of what they called the Carroll report, not yet endorsed by any government or private entity. Foust reported that the recommendations had been reviewed behind closed doors in Springfield at a meeting attended by Governor Kerner, Director Payes, Chief Engineer Bartelsmeyer and Deputy Chief Engineer Roger Nusbaum. Kerner had no comment after the meeting, but Payes said the report should go out to all state agencies for guidance. According to the paper, the rather tepid response from the state was related to the issue that had plagued the Policy Committee (or technical chiefs as they were called in the article) for much of the previous two years. The article described the beltway that would relieve the present congestion on Congress and the Northwest Expressway as something that Mayor Daley was expected to construct but very cautiously, one piece at a time. The governor, despite the urging of his staff, was not inclined to take issue with him. But Chicago Motor Club President Cavanaugh did. He said that Daley was suppressing the CATS report because it was not politically popular to traverse neighborhoods, despite the fact that an expanded expressway system was absolutely essential to the future of the metropolitan area.

On Thursday, September 6, 1962, at the 28th meeting of the Policy Committee held on the fifth floor in the State of Illinois Building, on a motion by Bill Mortimer, seconded by Commissioner DeMent, the CATS plan was finally released. Before entertaining questions from the press, the committee agreed to meet on or near September 20 to discuss the future of CATS. The release was overshadowed by stories of the children in Chicago heading back to school, the second week of a strike of the Chicago and Northwestern Railroad employees and the looming crisis in Cuba.



A little over seven years after the first Policy Committee meeting was held, the work was finally completed. The original prospectus called for a study taking less than three years and costing \$1.5 million. More than \$3.5 million would be spent in the seven years it took to publish Volume III. Part of that the delay was inherent in the time required to develop the innovative transportation planning techniques for which CATS was to become famous. According to Roger Creighton, despite the fact that the study took over six years instead of the

scheduled three, it was “clear to everybody that nothing could be done but hang in there and finish and the Policy Committee recognized this, grumbled a bit, but there were no shouting matches.” He points out that “the committee and the staff stayed together for the full six years.” (*Creighton interview 3/11/03*)

But the delays caused by creating new planning technology appeared to have been overcome by late 1959. Other factors were at play that impeded progress toward development of the plan. By this time, the city was reevaluating its position on additional expressways within its borders. In the late 1959, it developed its own alternative to the first plans to be tested by CATS. In the city's proposal, called Scheme J, the expressway mileage is held constant but well over 600 miles of upgraded arterials are added. This was in direct contrast to Scheme B, which added a North-South Expressway in the city to the committed system. This was the first in a series of steps that the city employed to slow down the development of a plan as they grappled with the decision to add additional uncommitted expressway lanes within city limits. In an article on September 7 that described the report, the *Chicago Tribune* quoted Mayor Richard Daley as saying, “The report is a document of great use to us in planning urban renewal.” He said the suggestions for transportation improvements “will be considered in light of other considerations of importance to the city.” (*Chicago Tribune/9/7/62*) Not exactly a ringing endorsement, but not surprising considering the city's reluctance to embrace additional expressways. Daley was moving cautiously for a couple of reasons. In 1959, Chicago voters had turned down a Daley-endorsed public works bond issue for the first time. More importantly Daley, in late 1962, was in the midst of his toughest mayoral contest – with the popular Benjamin Adamowski.

Footnote: When the author went to work for the City of Chicago in the Bureau of Street traffic in January of 1961, my supervisor, Elizabeth McLean, gave me a general background briefing. In that briefing she said I should be aware that the mayor was not sure that any more expressways needed to be constructed in the city and that all questions pertaining to expressways should be referred to her. In the three years that I worked for the city, that was the final word on the subject.

At this stage, Doug Carroll seems to have been the only one publicly defending the plan and especially the need for additional expressways. In one article he is quoted as saying “studies are conclusive that the cheapest, most efficient and safest way of moving large volumes of auto traffic is by the expressway.” (*Chicago Tribune/9/7/62*) Carroll was hardly alone in his belief of the superiority of the expressway and moving people safely and efficiently. Only months earlier, Director Payes proposed doubling the state's freeway miles. The Bureau of Public Roads was embarking on a program to plan for expressways in all metropolitan areas of more than 50,000 people. In late 1962 when the plan was released, little resistance to expressways was yet apparent. There was considerable optimism that this rather ambitious plan was logical and obtainable, but the lack of support from Mayor Daley had most public officials keeping the plan at arms length.

Despite its logic, only a portion of one second stage L-3 expressway (I-355) has, to date, been opened to traffic. Although a variety of factors contributed to that situation, the author feels that the delay caused by the city's reluctance to accept a plan that included the Crosstown played a major role. The committed plan, which did get built, had been agreed to in 1939 and updated in 1946. Some pieces of the committed system had been worked on for 20 years. The CATS L-3 plan was a scientific or rational extension of that system. It had the support of the people responsible for building such an expanded system. The most difficult-to-construct portions of the committed system were either open to traffic or would be within months, and plans were complete and right-of-way had been purchased for the rest. But gearing up for the expanded system would take time. The time lost between 1960 and 1962 in adopting a plan proved critical. By 1964 and 1965, the ability to move ahead judiciously in the planning and construction of expressways was just about over. Getting started a couple of years earlier might have pushed several links far enough along to get them implemented.

The news articles describing the plan spent as much column space describing the transit proposals as they did expressways additions. They reported the emphasis in the plan for urgency in the mass transit improvements and described the transit goals as improving access to downtown and better coordination



of the different services. They noted that the report did not suggest any method for raising the \$185 million needed to address the proposed improvements. CTA Chairman Gunlock advanced the same theme when he was quoted as saying that the report in general is good, but it does not provide the money to construct the needed transit improvements. The chairman was referring to the CTA, since the suburban rail lines were still in private hands and not yet eligible for any public funding. His concern had to be that the city continued to lose population, jobs and the CTA to bleed riders. The optimism of the late '50s, personified in the 'New Horizons' report, was beginning to wane. The chairman must have realized that within a few years the CTA would begin to have trouble covering its bonded indebtedness. So his concern was not what the plan excluded, but that it did not propose a means to finance what was included.

With their work finished and a plan on the books, the state, county and the city went about completing the committed expressway routes that they had been planning and designing for nearly 20 years. Within a year, all of the members of the Policy Committee would have retired or moved on to be replaced by younger leaders. Bill Mortimer would retire to consulting within a year, to be replaced by Andrew Plummer, Milton Pikarsky would replace Commissioner DeMent in 1963, and Ralph Bartlemeyer would move to Washington, D.C., and head the Bureau of Public Roads after a few years as a consultant in Chicago. Charlie "Shorty" Monnier, from the BPR Division office in Springfield, replaced Fred Farrell on the Policy Committee. Doug Carroll moved on to New York and the TI-State Study, being replaced by Wilson Campbell. The new generation of leadership would be responsible for implementing the L-3 plan, but would find it to be an almost impossible task.

Gunlock was reappointed as CTA chair the day the plan was released, and the CTA would have much better luck in implementing their more modest proposals. But for George DeMent, who took over for Virgil Gunlock in 1963, the CTA's increased ridership resulting from their expanded network would prove troublesome. Despite the ridership increases, the higher operating cost from the additional service adversely affected their bottom line and pushed them toward the transit funding problems of the 1970s.

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