
CN
Toronto
Yard

Introduction

The booklet in your hands is out of date. It was out of date the day it was printed. But even if we were to rewrite it and reissue it, chances are it would still be out of date when it came to you. Toronto Yard is not a static facility. It is perpetually growing more sophisticated and complex. A description of it written today seems almost certain to be incomplete tomorrow.

Then why publish a booklet about Toronto Yard at all? The answer is that Toronto Yard is important. It is significant. The most important developments in transportation today concern the intermodal movement of freight and the automated processing of equipment, information, and goods. Toronto Yard offers highly advanced examples of both developments. To understand Toronto Yard is to understand a great deal about the nature of the modern transportation industry.

This fact alone would justify publication of the booklet you hold. But there is another factor which also makes it a worthwhile project. Toronto Yard is more than a facility, and more than the location of significant transportation projects. It is also an influence. It exerts a major influence on the movement of freight and express throughout central and southern Canada, and a lesser, though no less real, influence on the movement of freight and express throughout the rest of the Dominion. It is a major purpose of this booklet to describe something of the extent and nature of that influence.

Details of some operations at Toronto Yard will certainly change as time passes. The scope of some activities may broaden, that of others diminish. There will be further development. At the time work on this booklet was undertaken the Servocentre described on page 18 was only a plan on paper. But whatever is added or taken away, the essential purpose of the Yard will remain unchanged — to improve the carriage of freight and express. And where it deals with purpose and intent, the booklet is, and will remain, up to date.

Vice-President

Intermodality

Toronto Yard is more than a railway yard, more than a collection of transport facilities, less than an integrated whole.

It is composed of four major transportation complexes with a total value exceeding 100 million dollars grouped on a thousand-acre site north of Toronto.

Each complex is a major facility in its own right. Each could function successfully without the immediate presence of the others.

Yet the complexes also interact with one another. They function together in various combinations to provide a number of intermodal transport services.

Toronto Yard can be fairly described as an intermodal transport centre. And if it is not the first, it is certainly, in the modern sense, the largest intermodal transport centre in the nation.

Intermodal transport consists of using more than one kind of transportation to move goods from one place to another. It is not a new idea. It is a practice at least as old as the combination of camel caravan and galley which carried the perfumes of Arabia to ancient Rome.

What separates modern from ancient practice is intent. Modern intermodal systems are not a product of circumstance, they are planned. The idea is to combine two or more kinds of transport to create a new service superior to the service provided by one mode operating alone.

Toronto Yard abounds in intermodal combinations. The use of truck and train combinations to move express or international containers are two examples.

It would be incorrect to think of Toronto Yard only in terms of intermodal service. The yard does perform other functions, some larger in scope and more important than the intermodal activity.

Nonetheless, intermodal service is a common thread binding the complexes together.

The Yard may not be a single integrated system, but intermodal activity means it amounts to more than the sum of its parts.

It is in fact impossible to fully appreciate the scope of operations at Toronto Yard unless its potential for creating combinations of intermodal service is constantly borne in mind.

The Complexes

Toronto Yard, in brief, is not so much the name of a single thing as it is a general label applied to a group of related transport complexes located on the same site and operated by the same company — Canadian National.

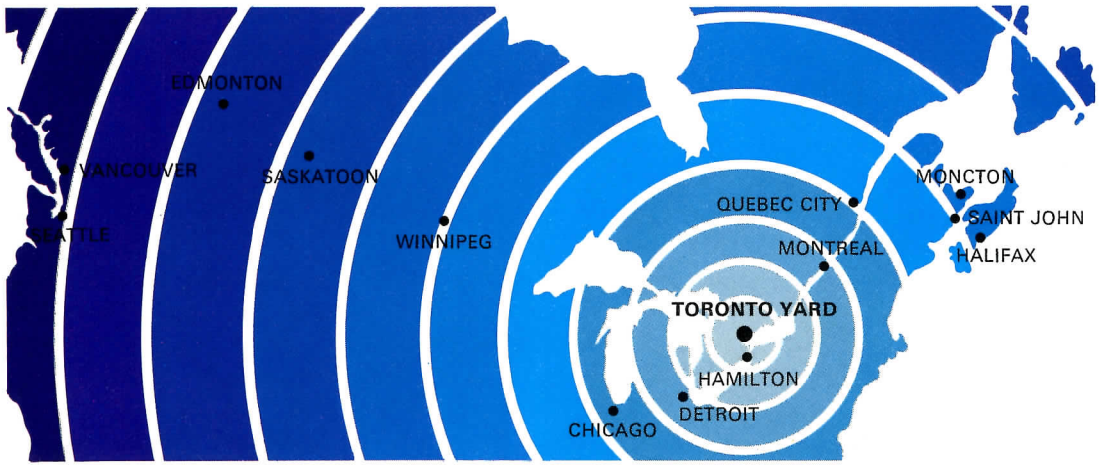
The major complexes are, in order of importance, the electronic classification yard, opened in 1965, which was the original Toronto Yard; Concord Express Terminal, opened in 1967, an immense, automated express handling centre; Conport, opened in 1969, an international inland container port; and Cargo-flo, opened in 1969, a dry and liquid bulk freight transfer terminal.

There are also two supporting operations at Toronto Yard worth special mention. One is the maintenance and repair operation for locomotives and freight cars. The other is Concord Garage, where a similar program is carried out for highway vehicles, and where Canadian National conducts experiments in controlling exhaust pollution from heavy-duty highway vehicles. CN was the first major truck fleet operator in Canada to undertake such a pollution control program.

Toronto Yard is also the site of a customer service organization — the Nortown Servocentre. It provides shippers in communities north of Toronto with, among other things, computer based car tracing information instantly on request.

But the key item in this list is the electronic classification yard. It interacts with all other major complexes; its operations influence the operations of the others.

At one time the phrase Toronto Yard meant the classification yard, and nothing more. The classification yard was the first of the major complexes to be constructed. To understand properly what Toronto Yard has become today, it is still necessary to begin with the original complex.



Distribution Centre

Railwaymen call it simply "the yard".

None of the other names have stuck. Electronic classification yard has proved too cumbersome; hump yard too ugly. Even the phrase Toronto Distribution Centre, which describes its purpose and function, has not gained currency with the men and women who work there.

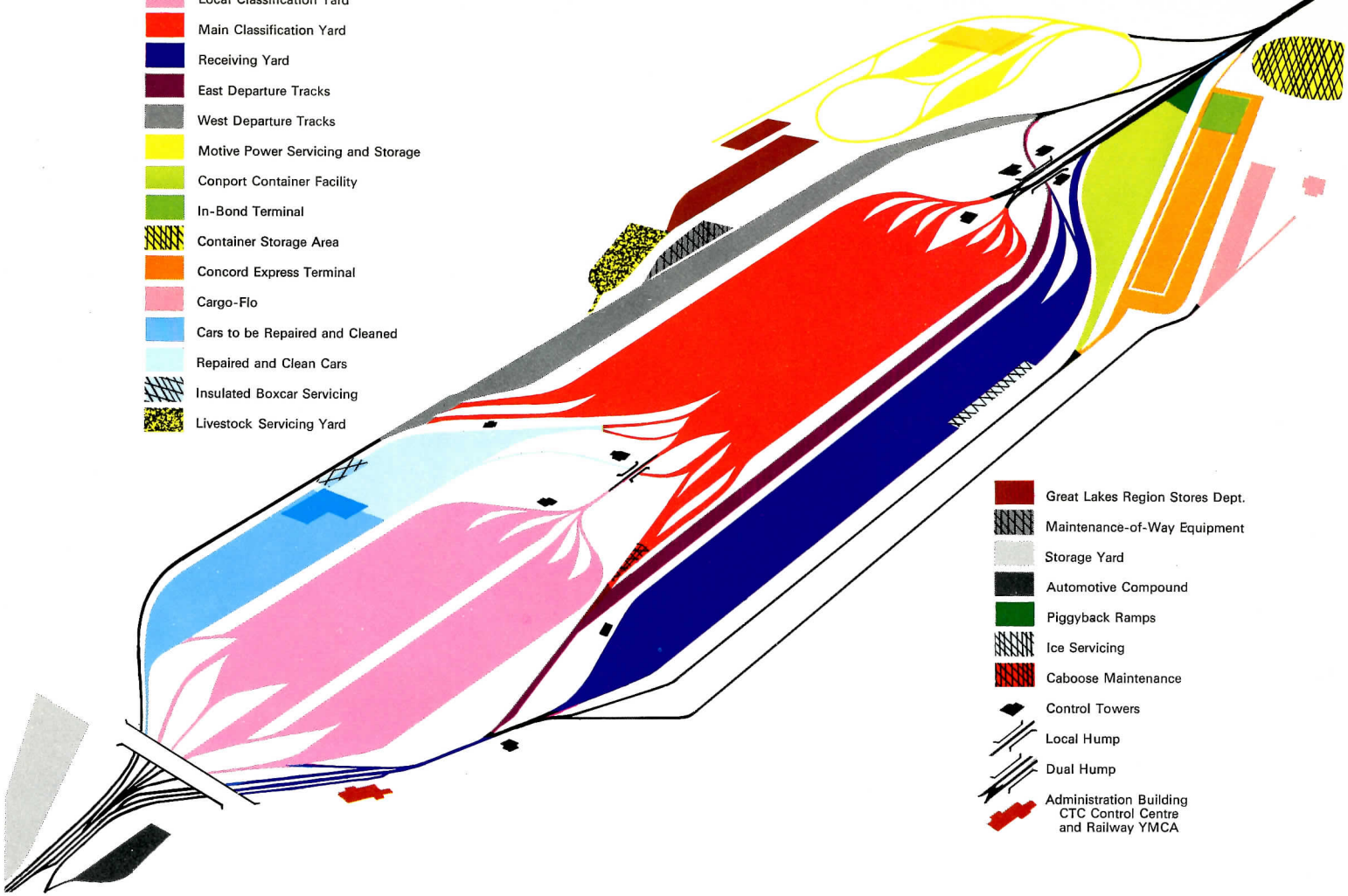
"The yard" is miles of steel sprawled over acres of ballast. It is an open air industrial plant lacking anything that could be called charm. It is also a birthplace of freight trains in a country where the freight train is the backbone of the land transportation system.

"The yard" is a 75-million-dollar freight handling facility — one of the most sophisticated freight handling facilities in the world. And it is one of a sisterhood.

CN maintains yards like it in Moncton, Montreal, Winnipeg and Edmonton. The operations of one influences the operations of the others. Together they provide a service of national significance in a country where development of a highly efficient domestic transportation system has always been a major priority.

"The yard" exerts an influence on industrial activities far beyond its immediate Toronto and Ontario environment. It expedites the movement of freight between the Atlantic and Pacific coasts and into the United States. And, finally, "the yard" is a marvel of transportation organization and technology.

Seven thousand freight cars a day move in and out of the yard. They travel over access



lines connected to six main line subdivisions behind a score of transfer trains and ninety manifest freight trains and road switchers.

It is the task of the yard and the railroaders who run it to turn the incoming cars into trains. They do so at the rate of three cars a minute, and send the new trains quickly on their way.

The task of classifying any car and planning how it will be fitted into a new train begins long before that car ever reaches the yard.

It begins when an advance "journal" for an incoming train is received on data processing machinery in the yard. The journal lists the cars in the incoming train, their contents, their destination, their order behind the engine — in short, all the information required to sort and classify them.

The information is flashed to control centres throughout the yard. When the train arrives on one of the twenty receiving tracks, a highly skilled staff inspects it, not only to check it against the advance journal, but also to ensure the cars are free from defects which might develop into hazards were they to continue their journey without maintenance attention. The staff also carries out whatever servicing might be required on perishable goods.

Once the cars have passed inspection, an engine pilots them to a man-made hill called the hump. They are uncoupled at the crest and allowed to roll unattended down the slope. A foreman seated behind a window at the crest of the hump punches on a console the number of the track to which he wants the car sent. And at this point, modern technology takes control.

A computer accepts data on the speed of

a rolling car from radar, and data on the weight of the car from electronic track scales. It takes into account the distance the car must travel along one of the classification tracks at the foot of the hill. It calculates momentum. And it activates the jaws of the master retarder.

These jaws close on the wheels of the rolling car and slow it down so that it will roll up to cars already on the track and couple to them at damage-free speeds of under four miles an hour.

As the time for train departure approaches, cars going in the same direction are moved from the classification tracks and assembled into trains in one of two departure yards.

Usually those cars going the furthest distance are placed at the rear of the train, those going a shorter distance at the front. And when the train leaves, the perpetual task ot creating a new train has once again been completed.

Is this process effective? The answer is an unqualified yes. The yard can sort and classify cars into trains at twice the speed of ordinary flat yards. And this is particularly important at Toronto because almost 65 per cent of the empty car supply for the Canadian National System funnels through this electronic classification yard.

Because of this, and because of the effect its operations have on the movement of trains throughout the country, the Toronto classification yard is something more than a local or regional transport facility.

It is in fact a national transportation resource.

Details

The Toronto classification yard is large and intricate and no narrative description can do it justice without becoming bogged down in details.

If the description does not take note of the fact the yard hump has dual tracks with one track for local traffic and one for through traffic; or if it does not mention the complex communications network and the fact there is hardly a place a man can stand in the yard complex and be out of reach of communication facilities; or if it does not mention the signal and radio maintenance operations based there; or if it overlooks the fact there is a master control centre in the administration building from which operations throughout the yard are controlled — then it will of necessity be incomplete.

These facts are important. They make it easier to understand the operation of the yard. But since to include them in the narrative would have been to sacrifice simplicity of exposition for detail, they are listed here separately as statistics.

One point, however, should be borne in mind when perusing them. They do not take account of the fact space has been provided for eight additional tracks in the dual classification yard and 38 tracks in the storage yard should they be needed at some future date.

Toronto Yard Statistics

Size	1,000 acres
Trackage	190 miles
Classification tracks	72 main; 60 local
Track switches	675
Daily classification	5,000 cars
Standing capacity	11,000 cars
Buildings:	
control towers	7
control cabins	4
major buildings	3
minor buildings	12
Electrical systems, connected load	3,000 KVA
Major yard bridges	6
Track ties	600,000
Rail	36,000 tons
Earth moved	5,600,000 cubic yards
Gravel sub-ballast	650,000 cubic yards
Crushed rock ballast	575,000 cubic yards
Roads	23.7 miles
Employees	1,500 to 1,600*

*These figures include various departments, i.e., Supervisors 100; Enginemen 140; Train Conductors and Trainmen 300; Yardmen 100; Clerical 100; Train Dispatchers 30; Motive Power and Car Repair forces 750; Engineering and Plant Maintenance 75; Telecommunications 15; Investigation (CN Police) 15.

Access Line Statistics

Length:	
New access line	35 miles
Double-tracking of existing single main line track	27 miles
Reconstruction of existing single main line track	38 miles
Bridges and grade separations	53
Earth moved	9,000,000 cubic yards
Gravel sub-ballatst	500,000 cubic yards
Crushed rock and slag ballast	425,000 cubic yards
Ties	405,000
Trackage	138 miles

Communications

Seven separate control areas, each equipped with radio, telephone, teletype and talk-back speakers for communication within itself, with central control, and with other control areas.

86 talk-back speakers
65 portable radios
34 teletype machines.

In addition to these communication facilities, there are direct link-ups from yard data systems to System computers in Montreal.

Automatic Car Identification

Toronto's classification yard is perpetually changing. Something new is always being added. And a recent addition to the battery of technological equipment at the yard is an eye that never wearies, or sleeps, or even blinks.

It is the eye of the electronic scanners used in the railway's automatic car indentification program.

The scanners have been installed at check points on access lines leading to the yard. They can read information from the sides of passing cars and engines, even though the cars and engines may be moving at 80 miles per hour.

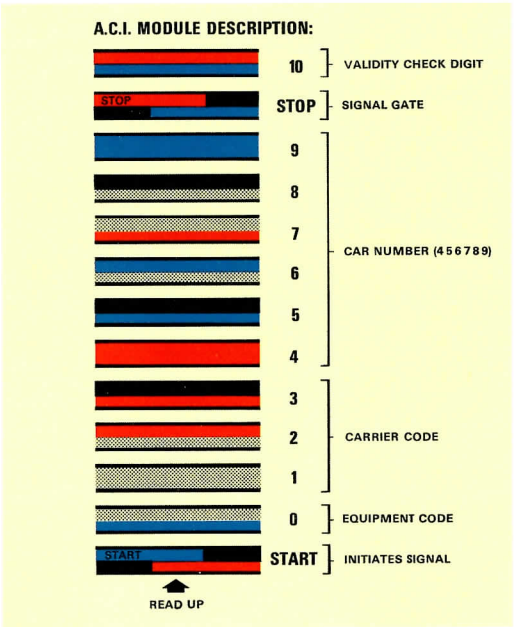
The information is contained in coloured plates fastened to the sides of railway rolling stock. The plates identify the type of equipment, the equipment owner, and give the equipment identification number.

The scanners relay this information instantly to a computer — from which it may be retrieved just as quickly for direct print-out on teletype and punched card machines in the yard's control centres.

CN is installing scanners like these at locations throughout the country. They will feed their information to a central computer in Montreal. As a result, the company will not only be able to provide superior car tracing for its customers, but will also be able to improve its control of car movements.

Why? Because it will have a better idea of where any given car is at any given moment.

The classification yard, of course, is a key location in the automatic car identification network because so much of the company's equipment, sooner or later, passes through it.



Centralized Traffic Control

The centralized traffic control centre at Toronto's classification yard is also one of the more important technological operations located there — despite the fact it has no direct involvement with the sorting of cars or the creation of trains.

Centralized traffic control is a matter of exercising indirect and remote control of the movement of trains over miles of track. It could almost be described as model railroading writ life size.

The dispatchers who work in the CTC centre directly control from their consoles the operation of switches and signals along 200 miles of track in the territory surrounding Toronto. This gives them indirect control of the operation of all trains using that track.

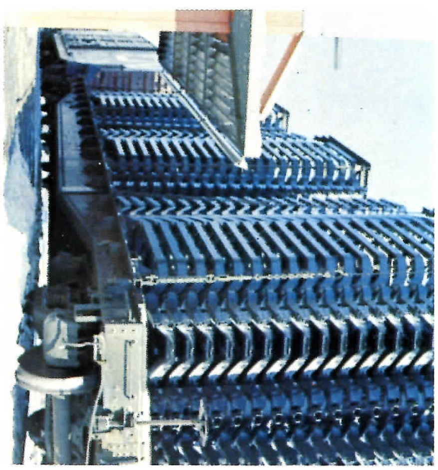
They are able, from their consoles, to electronically switch trains to sidings, pass faster trains around slower ones, and communicate with engine crews by radio.

The consoles electronically perform 400 control functions per second and receive 2,000 movement indications every five seconds. They are also designed to be "fail-safe" so that two trains cannnot be signalled into conflicting routes.

In front of the consoles is a lighted board 36 feet long on which is schematically reproduced the 200 miles of CTC track the dispatchers control. The track reaches from Copetown in the west to Bowmanville in the east and Richmond Hill in the north.

The board shows the routes lined for trains and train movements. A complete record is kept of train movements by pengraph, a device connected to the control consoles which automatically records on paper the time and location of each movement.

Centralized traffic control is not directly involved in the operation of the classification yard. But because it improves the handling of trains over the lines on which it has been installed, allowing the railway to get almost as much work out of one track as it used to get out of two, it nonetheless exercises an indirect effect on the efficiency of yard operations.



Maintenance

Like the men in the CTC centre, the men of the equipment department too are not directly involved in sorting cars into trains.

But unlike the men in the CTC centre, the services provided by the equipment department are an integral part of the basic operation of the classification yard. Without those services, the yard would barely be able to function at all. And if the services were not provided on a production line basis, the yard would not operate as efficiently as it does.

The work of the equipment department begins literally the moment a train arrives in the yard.

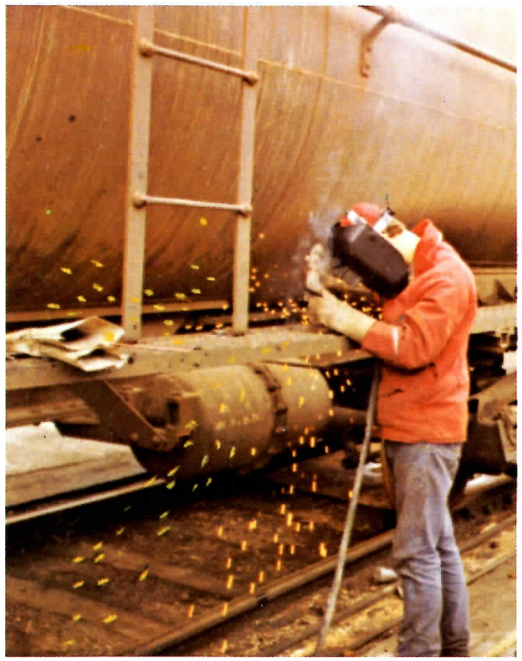
Inspectors who have been strategically placed along an incoming train by radio-dispatched vehicles inspect the mechanical condition of the cars.

They arrange by radio for cars needing only minor attention to be repaired where they stand by a special maintenance staff. Information on cars which must be routed to the repair shop is radioed to an inspection control supervisor who plans the necessary movements.

As inspection is being carried out, other crews place ice in the ice-activated cars, service and fuel any heaters, and attend to any mechanical refrigeration units.

On completion of the work, usually about an hour after the arrival of the train, Master Control is informed the cars may continue their journey through the Yard.

By this time the caboose has also been cut from the train and moved to the most



advanced caboose servicing and maintenance terminal on the Canadian National System.

Maintenance, repairs, cleaning and servicing of modern electric, as well as older style cabooses, is carried out on a production line basis prior to their being dispatched on an outbound train. The servicing terminal is equipped not only with latest cleaning and repair equipment, but also with trackmobiles to move cabooses along the service tracks.

Cars requiring more repair work than could be carried out while they stand in the train are routed to an 80,000-square-foot car maintenance building. And here again a production line technique comes into play. Over 200 cars of varying types can be repaired each day in the repair shop complex. In fact, cars sent to the spot repair section can be processed at the rate of three per hour.

All repairs made to freight car equipment are coded on data processing cards and the information transmitted to a computer. This data, when consolidated, becomes the basis for developing production and efficiency reports on each of the repair departments within the car shops. It also provides important information on fleet maintenance requirements, desirable design modifications, material utilization and costs.

Adjacent to the car repair shops is the car cleaning plant where high pressure water and steam systems and an array of smaller machines sweep, vacuum, wash, deodorize and disinfect 300 freight cars daily.

Further expansion of the car repair plant was undertaken in 1971 to equip it with an advanced repair and servicing facility for CN's expanding fleet of mechanical refrigerator cars.

But not only cars are repaired and maintained at the yard; the diesels that haul the cars undergo servicing and maintenance there as well.

Equipment forces at the motive power building inspect, repair and service with water, oil, fuel and sand an average of 110 diesel locomotives daily.

Here again the assembly line approach is used to carry out inspection and repair work. A recent addition to equipment at the motive power shop was an under-floor wheel truing machine which allows wheel turning to be carried out with the wheels still on the locomotive. In the past the wheels had to be removed before work could be done on them.

And here, too, the repair information is sent to a computer, making it possible to detect maintenance and material problems easily, and to analyze existing repair methods to see how they might be improved.

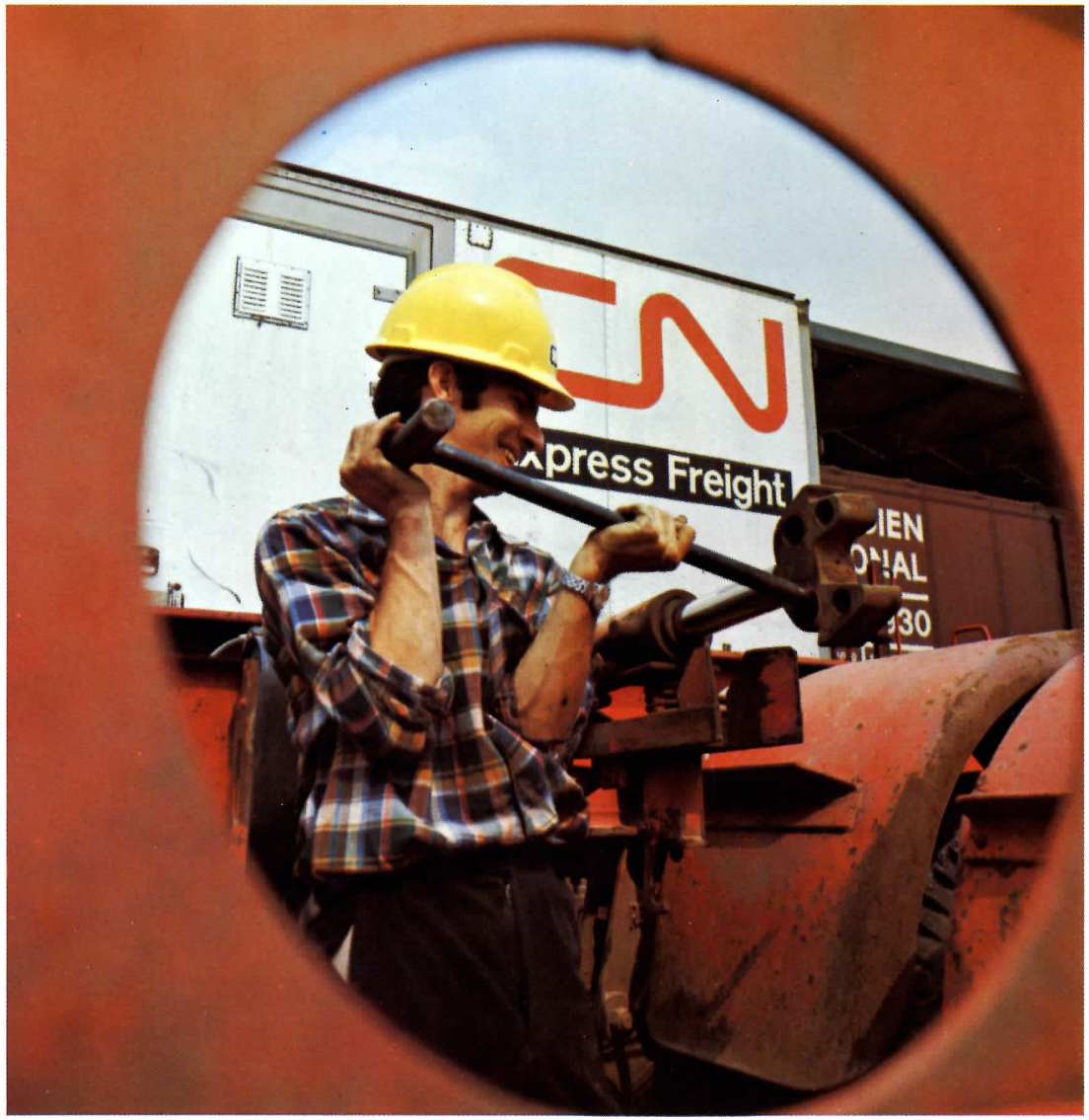
Once a diesel has moved through its cycle of inspection, service, and repair it is placed on a track in a unique herringbone storage yard designed to ensure its rapid availability on a random access basis.

To further shorten the time a diesel is out of service, a servicing truck is used to fuel diesel units throughout the Yard so that, where possible, time lost in travelling to the shop can be eliminated.

Also located at the Yard and operated by the equipment people is a 250-ton capacity mobile crane which is used for lifting heavy loads.

Basically, however, the chief function of the men of the equipment department is the same as that of the men who sort freight cars into trains.

It is to keep equipment rolling through the classification yard as quickly as possible.



Automated Terminal

Concord Express Terminal was the second major transportation complex built at Toronto Yard.

It is smaller than the classification yard and cost $10 million to build.

It has also proved very popular with visitors to the Yard, partially because of its unusual automated features, and perhaps as well because its operations are relatively easy to comprehend.

It is an immense facility, capable of handling 5,000,000 pounds of express a day. Like the classification yard, the influence of its operations is felt in areas far beyond its immediate location. It is the core of CN's Ontario express operations and has, in fact, improved the handling of express right across the nation.

Concord operates on a two-cycle pattern. From midnight to noon every day the terminal is an inbound house. It accepts trucks, containers and trains loaded with express for delivery in Toronto or for transfer across the country.

From noon to midnight it is an outbound house. It sorts and moves outbound Toronto express, air express and transfer traffic from southern Ontario, loading it on railway cars, highway units and in containers for shipment to communities across Canada and to other countries.

Four express trains that travel at passenger train speeds between terminals are dispatched from, and received at, the express terminal daily. These are pre-marshalled trains, and in order to expedite their movement, maintenance crews service them from pits below track level in the terminal while the rail cars are being loaded or unloaded.

The main Concord shed is gigantic. It is longer than four football fields and covers thirteen acres. More precisely, it is 1,536 feet long, 344 feet wide and is heated throughout. It has 258 truck doors and 75 rail car doors.

There are four railway tracks inside the shed which will accommodate 60 rail cars and two tracks outside which will accommodate an additional 40 cars.

The most striking feature of the shed, however, is not its size, but an automated towveyor system and a sortation carousel.

The towveyor is a chain nearly 21,000 feet long circulating continuously under the floor at the rate of 100 feet per minute.

Towveyor carts are hooked onto the chain and hauled automatically to any one of 10 zones in the shed. There are 212 electronically-controlled switches along the towveyor

routes which can shunt the carts into short spurs at various loading and unloading stations. The towveyor line automatically directs empty carts to wherever they are needed, or to a storage area.

There are 2,300 towveyor carts in the shed and they are used for handling package traffic. There are 500 heavier carts used to handle other kinds of traffic. Towmotors are used to haul these heavy units throughout the terminal.

The towveyor system is integrated with a sophisticated package sortation carousel by means of conveyor belts. Employees known as "markers" stand beside the conveyor belts and code packages for any one of 62 chutes on the sortation carousel as the packages pass by them on the belts.

The coded packages travel up the conveyor belt to the carousel sortation system and are placed on trays where a "keyer" operating a keying device further codes the shipments for any one of the 62 sortation chutes. The chutes provide for 101 initial sortations serving more than 2,000 express destinations across Canada. The carousel is capable of sorting traffic at the rate of 7,200 pieces per hour.

An electronic eye near the top of each chute trips an alarm if the chute becomes full or is jammed. When this occurs, parcels automatically continue circulating on the carousel until the chute is cleared or an adjacent chute is designated to receive the overflow.

There are closed circuit television cameras suspended from the roof of the shed at strate-

gic points. They provide the controller, seated before a battery of television screens in the control room, with a complete view of conditions in the shed.

The controller has control of the towveyor system. He can instantly stop or start any section of it, or all of it, by pressing a series of buttons. The TV cameras are equipped with zoom lenses and can be tilted or rotated automatically by the controller and can focus in on any problem area within the terminal complex.

The control panel allows the controller to over-ride the automatic systems in order to clear traffic jams or to prevent equipment damage or possible accidents to employees. He also has communication with floor supervisors through radio and an intercom system.

Concord, then, is a terminal for express trains and an automated parcel handling complex. It is also a major trucking terminal. It serves Metropolitan Toronto and surrounding communities with one of the largest truck fleets in Canada. The fleet numbers more than 300 vehicles in pick-up and delivery service and includes more than 100 tractor trailer units assigned to highway routes beyond the metropolitan area.

To simplify the logistics of handling express by truck, Metropolitan Toronto has been divided into seven express zones. There is a supervisor in charge of each zone who dispatches trucks directly to customers waiting for delivery or pick-up. Approximately one third of the truck fleet is equipped with radio and can receive orders while on the move. Other drivers keep in touch regularly by telephone.

As has been mentioned before, Concord Express Terminal is an exciting complex. It may perhaps even be regarded as a peek into the future of express handling. But if so, then its sister facility, Conport, is, in another sense, the future already arrived.

Conport

Conport is containerization — and containerization on the present world scale was little more than a concept when the task of building the classification yard was begun.

Conport is a bonded inland container port, the largest inland container port in Canada. It is a three million dollar facility which also sees double duty as a piggyback terminal. But it is primarily a facility for handling containers and it was container traffic which brought it into being in 1969.

The international boom in container shipping stemmed from the simple advantages containers offer shippers. A container can be loaded at a plant and shipped unopened thousands of miles by a combination of modes of transport. It can move, for example, by a combination of road, rail and ship.

Containers also reduce physical handling of individual items, almost eliminate breakage and pilferage, and relieve pressure on port operations by making possible inland-to-inland customs inspection. Containers coming from Europe can undergo customs inspection not at ports such as Montreal and Halifax, but at inland points such as Conport.

Canadian National has been a leader in container shipping by railways. It has more than 1,100 standard containers of its own in domestic service. And it pioneered in the development of terminals such as Conport for the handling of the international containers owned by major shipping lines.

The 10-acre, paved Conport site consists of two sets of double railway tracks and three concrete pads 1,700 feet long. One of the pads is located between the sets of double tracks, the others on either side of the tracks. A 40-ton, 74-foot mobile gantry crane operating over the concrete pads and capable of handling more than 1,500 containers a week makes it possible to work two tracks at any time.

Other kinds of container lifting equipment used at Conport to load and unload containers, or transfer them between rail cars and trucks, include three 30-ton capacity front end loaders and one lightweight machine for empties only. The gantry crane has the capacity to handle both containers and piggyback trailers.

Another difference between the two types of lifting equipment is the fact the gantry crane operates from directly above the truck or railway car being loaded or unloaded. The others work from the side.

Conport also has an 85,000 square foot bonded terminal attached to the northwest wing of the Concord Express Terminal.

A bonded terminal is one for handling traffic which is moving, or will move, under customs bond. It is here that break-bulk import containers are unpacked and the contents cleared through customs, and consolidated outbound containers packed for export. There is a customs office located in the bonded terminal, and offices assigned to representatives of steamship and brokerage firms, as well as office space for Canadian National's own staff.

The Conport complex provides storage space for 2,000 loaded and empty containers. Plans are underway to provide storage space for an additional 1,000 container units. Further, Conport offers a container tracing service, a repair service for containers, and servicing for heated and refrigerated containers. In addition, Conport is a piggyback facility supplementing piggyback operations at two other locations in Metropolitan Toronto: Bathurst Street and Mimico.

The future growth of the Conport complex seems assured. Canadian National is negotiating with carriers in several countries for container traffic. This could involve movement of containers from the Far East and European centres to inland Canadian points and return. Such a development would almost certainly be reflected in increased activity at Conport.

CN is also concerned with traffic which might originate or terminate in the United States but enter or leave the continent through a Canadian port. And here again the growth of such a practice is likely to affect activity at Conport because the containers may be routed through it.

The future of Conport is bright. It is as bright as the future of intermodal transport, and that is very bright indeed. But Conport is not the only simon-pure intermodal transport complex at Toronto Yard, nor is it the only one whose activities have been growing and expanding. There is another. It is Cargo-flo.

Cargo-flo

The Cargo-flo terminal is the smallest of the major transport complexes located at Toronto Yard, and perhaps the most specialized.

Yet the advantages of using intermodal transport to move goods are more clearly revealed there than at any other place in the Yard. For Cargo-flo is basically a simple operation.

Railway tank cars bring shipments of bulk commodities to rail sidings in the terminal. The commodities are then transferred through hoses directly from the rail cars to bulk motor carriers parked alongside.

It is as simple as that — and tremendously effective.

The chief virtue of Cargo-flo is that it allows a customer who does not have his own rail siding to still take delivery of commodities by highway vehicle, but at the same time benefit from the economy of long haul, bulk rail transportation. The Cargo-flo technique can reduce transport costs by as much as 30 per cent.

In addition, it eliminates expensive bagging and packaging, reduces loading and handling costs, and erases the cost of returning empty containers to production points.

Further, it is designed so that more than one customer can participate in the economies of rail transport at the same time by jointly ordering a carload of the same commodity and then having the contents delivered separately by bulk motor carriers.

Bulk commodities handled at the 500-thousand-dollar Cargo-flo terminal include sugar, cement, chemicals, plastics, flour, commercial liquids and similar products. They move to the customer either in bulk motor carriers operated by a Canadian National subsidiary,

or in trucks operated by the customer.

The Cargo-flo complex is operated by Provincial Tankers Limited, the tank truck arm of Canadian National Transportation Limited, a CN subsidiary. PTL operates a fleet of 45 bulk motor carriers with payload capacities up to 80,000 pounds.

Facilities at the complex include a truck scale, steam-cleaning equipment for rail cars and bulk motor carriers, the equipment needed to transfer bulk commodities from both vacuum and pressure pneumatic rail cars, and sidings which can accommodate 36 rail cars.

Cargo-flo is a superb example of intermodal transport in action. And like the other intermodal services at Toronto Yard, it depends heavily for its success upon an efficiently operated motor carrier service.

In this connection it is worth more than a passing mention that there is an experiment being conducted at Toronto Yard which may have the subsidiary effect of improving the mechanical performance of CN trucks everywhere.

Pollution Control

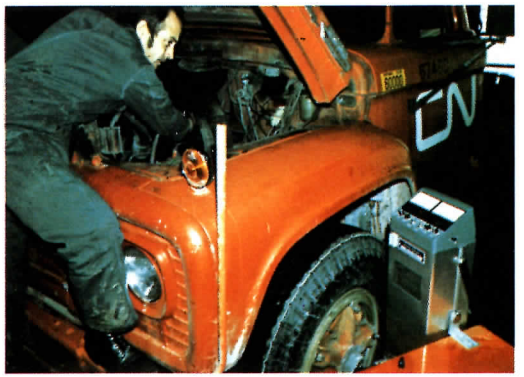
Early in 1971 Canadian National announced it was initiating at the express terminal's Concord Garage an experimental program to control pollution emission by its highway vehicles.

It is not the first pollution control program initiated at Toronto Yard. Measures to control the disposal of industrial waste have been in effect there since the classification yard was built in 1965.

Nor is it the only experimental pollution control program conducted at the Yard. Experiments in controlling air pollution emissions from diesel locomotives have also been carried out there, even though diesel locomotives pose much less of a pollution problem than highway vehicles.

But the experimental program for highway vehicles is especially significant because Canadian National is the first major truck fleet operator in Canada to attempt controlling exhaust emission levels of heavy-duty trucks.

The Company plans to make information obtained from the program available to interested government bodies and has already, as part of the Concord program, been assisting the Ontario government in establishing standards of exhaust emission for heavy-duty trucks and tractors.



The first phase of the program has been one of establishing control data. Special testing equipment has been installed at the garage and tests run on CN highway vehicles. A dynamometer is also to be installed so that further tests can be conducted on heavy-duty vehicles under simulated road conditions.

Once vehicle emission limits have been established under the test program, CN trucks will continually be examined on a rigid schedule to ensure their performance remains within the set limits.

But the program has already produced one interesting result. Indications are that one of the effects of reducing exhaust pollution is to improve vehicle fuel consumption and overall vehicle performance. In short, the program enables CN trucks to operate more efficiently.

The program, of course, was not initiated simply to improve truck fleet performance. It was initiated because Canadian National believes it is a good corporate citizen and because it intends to act as a good corporate citizen in meeting its various social responsibilities.

The same point might be made, though on a different level, about another recent undertaking at the yard. It, however, was instituted, as was the whole Toronto Yard complex, to meet the Company's more fundamental obligation to continually improve and refine the transportation services it provides to Canadian society.

The undertaking is the Nortown Carload Servocentre.

Servocentre

Late in 1970 Canadian National announced a major improvement it would make in the way it serves express and freight customers.

It announced it was moving away from a form of customer service organization evolved during the era of the telegraph key — a form of organization which still reflected many of the shortcomings of that mode of communication — and was moving towards a customer service organization based on the information capacities of the computer.

The new customer organization was the Servocentre. More than 100 Servocentres were to be established at key locations across the country. Some would be designed for express customers, others for carload freight customers.

Examples of both types will be found at Toronto Yard. They are similar in most respects, but the carload Servocentres are at this time technologically the more advanced and it is a carload centre which is examined here.

The carload centre is in one respect an input — output centre for a computer located in Montreal. The computer continually accepts and collates information streaming to it 24 hours a day from Servocentres, from automatic car identification scanners, and from key centres of transport activity such as the Toronto classification yard.

The most important component of this information flow is data on car location. The computer knows at any time the location of any one of the company's 100,000 railway cars, what is in it, where it is going, what will be done with it after it is unloaded.

The Servocentre has direct, instant access to the computer. A customer who wants to know the location of his carload shipment can telephone the Servocentre and learn the answer almost immediately. Or he can be briefed on the availability of cars he needs for loading.

The computer data is also available to railway operating people and it is worth noting in passing it will enable them to improve vastly the efficiency with which they utilize the company's national railway car fleet. But the main benefit of the Servocentre form of organization is felt at the local level.

The Servocentre organization provides local service to local shippers in their communities, and this is worth stressing because it is all too easy when considering the effect Toronto Yard activities have at the regional, national, and local level to forget that one of the prime functions of all its major complexes is also to meet the transportation needs of local shippers and local communities.

In fact, it is the small community which benefits most from the Servocentre form of organization. For Servocentres have the effect of providing small communities now without any, or only limited, railway representation a level of service and information equal to that found in any of the country's largest centres.

The reason is that each Servocentre is connected to communities and shippers throughout the area it serves by telephone lines over which a customer may call even long distance at no direct charge to himself.

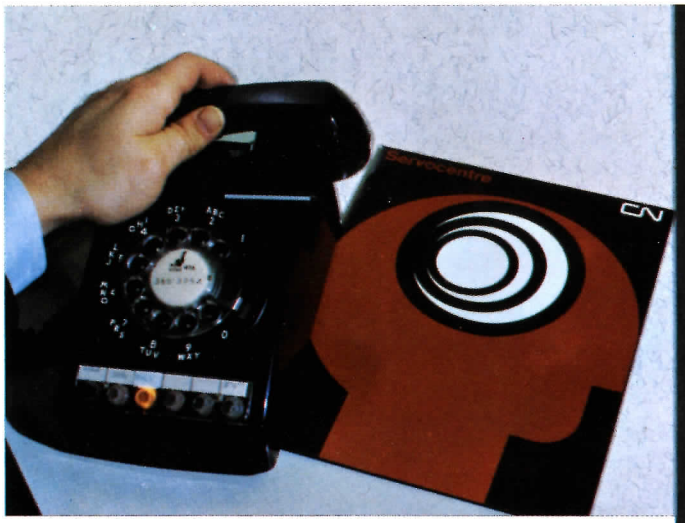
It does not matter whether a customer calling the Nortown Servocentre at Toronto Yard is calling from a tiny community or a larger one, he still deals with the same customer organization, not one whose size and resources have been scaled according to the size and scope of business activities of his local community.

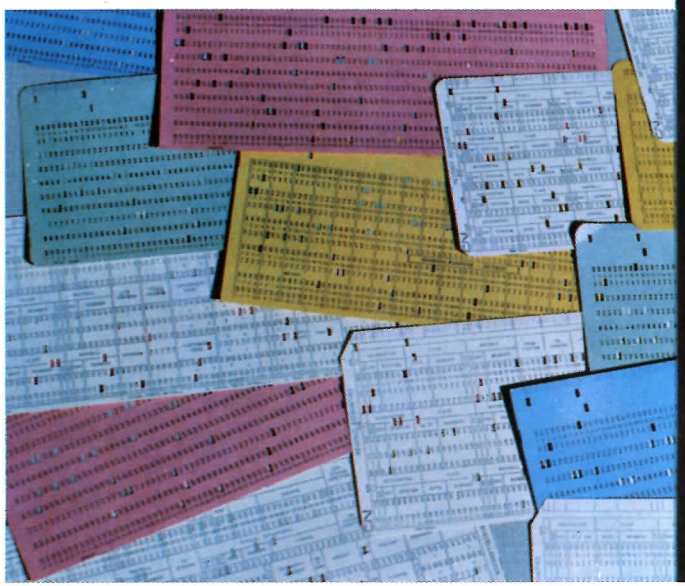
When he calls the Servocentre then, the shipper in a small community has equal access to the same flow of computer data available to a shipper in a larger centre — and access to the same staff of transportation specialists. For a Servocentre is more than a computer input-output centre. It is also an organization composed of all the people responsible for the train operations, sales services, documentation, and rate information in the Servocentre territory.

Where in the past a customer in a small

community might have had to deal with a local agent who had in turn to deal with a transportation specialist somewhere else, under the Servocentre form of organization he deals directly with the transportation specialist himself. He also has access to a travelling representative who can call on him to discuss special or complex matters face-to-face. This access to transportation specialists is at least as valuable a service for the customer as is access to the flow of computer data.

Indeed the Servocentre represents every bit as much an innovation in railway organization as it does an innovation in handling of railway data. The Servocentre is in practise as much a "people" thing as it is a technological thing. And this too is a point worth stressing, for it is easy when viewing the technological aspects of the Toronto Yard operation to forget for a moment it is run by people for people.





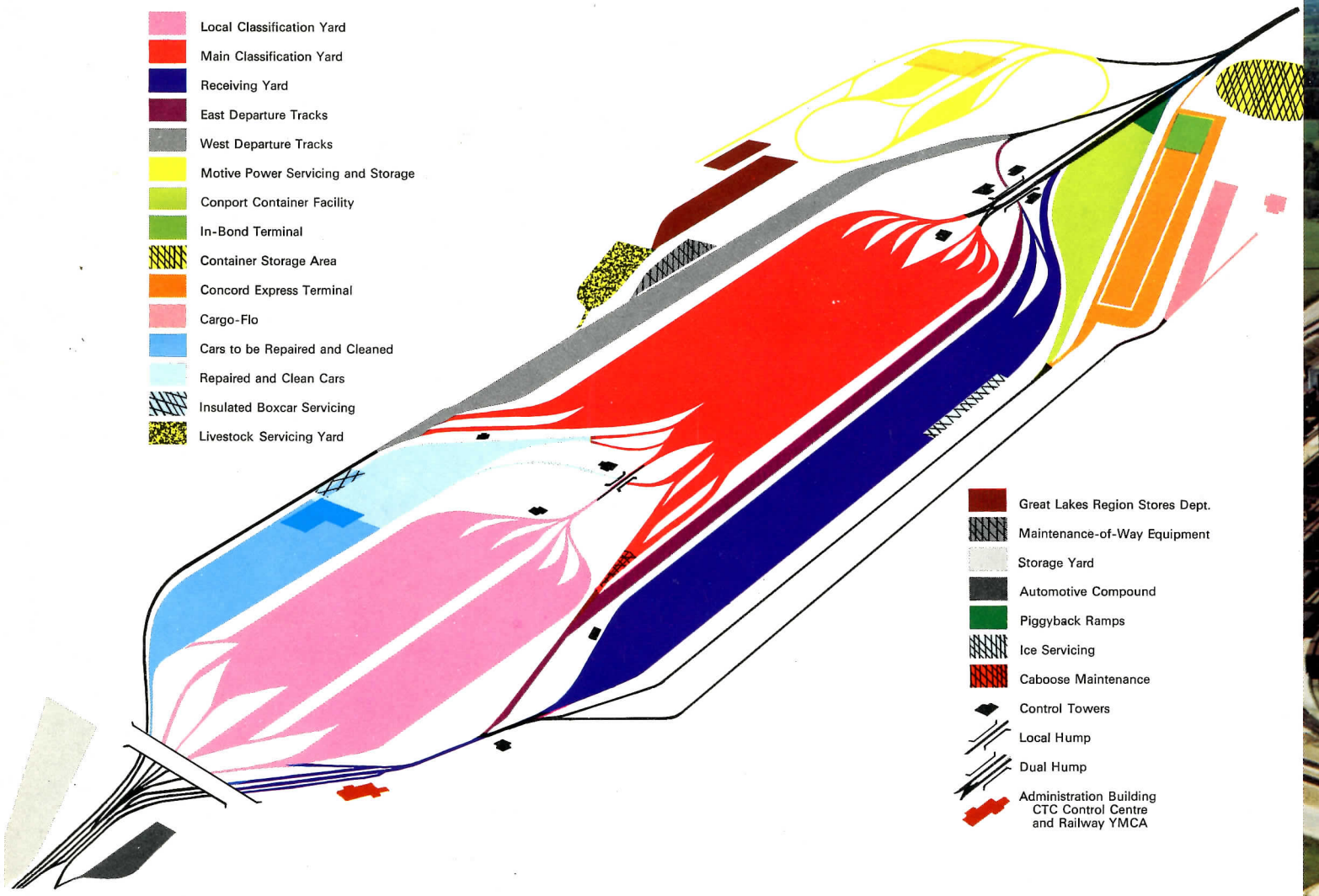
People

Railway people in Canada are by tradition builders. And it is for people that they build.

It was for people they built the rail networks that stitched together the Canadian Confederation. It was for people they built modern transport complexes that help sustain the national economy. It is for people they have begun the task of building the transport and communication systems required for the future development of the Canadian north.

There are 82,000 employees working for Canadian National. They work 656,000 hours a day. They bring wheat for bread to the east, industrial equipment to the west, products of the sea to the interior. They contribute much to the unity and the well-being of the nation. They do this for people.

In consequence they make such transportation entities as Toronto Yard people things; things created and operated by people for people. And of all the aspects of Toronto Yard, it is perhaps the people aspect which in the end is the most exciting aspect of all.


Local Classification Yard
Main Classification Yard
Receiving Yard
East Departure Tracks
West Departure Tracks
Motive Power Servicing and Storage
Conport Container Facility
In-Bond Terminal
Container Storage Area
Concord Express Terminal
Cargo-Flo
Cars to be Repaired and Cleaned
Repaired and Clean Cars
Insulated Boxcar Servicing
Livestock Servicing Yard
Great Lakes Region Stores Dept.
Maintenance-of-Way Equipment
Storage Yard
Automotive Compound
Piggyback Ramps
Ice Servicing
Caboose Maintenance
Control Towers
Local Hump
Dual Hump
Administration Building
CTC Control Centre
and Railway YMCA