

An aerial photograph showing a multi-lane highway interchange with several overpasses. The highway curves through a landscape that includes residential areas with houses and trees, as well as some industrial or commercial buildings. The text is overlaid on the right side of the image.

PROGRAM

**OFFICIAL DEDICATION
OF THE
INDUSTRIAL SPUR**

BANGOR

OCTOBER 30, 1959

PREPARED BY
MAINE STATE HIGHWAY COMMISSION



*His Excellency Clinton A. Clauson
Governor of the State of Maine*

MAINE STATE HIGHWAY COMMISSION

David H. Stevens, *Chairman*
Perry S. Furbush
R. Leon Williams
Vaughan M. Daggett, *Chief Engineer*

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View of four-lane Industrial Spur from overpass at cloverleaf interchange looking east. It is exactly 1.6 miles from this point to the Main Street interchange. Spur was opened to traffic September 24th; over 5000 vehicles were counted the first day.

P R O G R A M

DEDICATION OF THE INDUSTRIAL SPUR at The Interstate Spur Overpass at Main Street, Bangor October 30, 1959

- 1:10 P.M. Bus leaves Columbia Street entrance of Bangor City Hall for Interstate Highway tour.
- 1:45 P.M. Second bus leaves "The Commons" at University of Maine for Interstate Highway tour for those attending ASCE Highway Conference.
- 3:10 P.M. Buses arrive at the Interstate Spur Overpass at Main Street for dedication ceremonies.
- 3:15 P.M. Dedication of Industrial Spur.

Master of Ceremonies

Joseph R. Coupal, Jr., City Manager, Bangor

Invocation

Rev. Charles A. Marstaller, Pastor, Essex Street Baptist Church

Speakers

R. Leon Williams, Member, State Highway Commission

John T. Barry, Chairman, Bangor City Council

Honorable Clifford G. McIntire, U. S. Representative, 3rd District

His Excellency Clinton A. Clauson, Governor, State of Maine

Governor Clinton A. Clauson cuts ribbon to officially open the Industrial Spur.

- 3:30 P.M. Board buses and adjourn to the auditorium at Bangor City Hall to view display of aerial photographs and maps showing the Interstate Highway location in Bangor thru to Stillwater Avenue, Orono. There will be an opportunity for a question and answer period with members of the State Highway Commission and engineers on hand to take part in the discussions. Hot coffee will be served.
- 4:00 P.M. Bus returns ASCE members and guests to University of Maine.

THE INTERSTATE HIGHWAY STORY IN BANGOR

JUST OVER TWO YEARS AGO one of those modern marvels of construction machinery, a backhoe, crooked its steel arm into the air near the Bangor City Hospital and dug its steel fingers into the earth. It was the first ground broken for Interstate highway construction in the Queen City.

Today, $\frac{3}{4}$ of a million yards of earth later (plus quantities of concrete, steel and gravel equally as astronomical in their proportions) traffic is humming over the broad four lane highway of the Industrial Spur from the Main Street interchange to Odlin Road. Traffic recorders are busily clicking off over 6000 vehicles a day. The Spur will not only "tap off" thousands of vehicles a day from Hammond and Union Streets and relieve congestion in the downtown area, it will also make Bangor's new industrial areas near the Spur attractive to firms seeking new and more functional quarters.

A modern highway to serve these industrial areas has been a dream of the city's progressive citizens a dozen years or more. Now that dream has been realized in rugged, long-lasting asphalt, steel and concrete.

Bangor's city fathers had another vision of the future, which also has a connection with current Interstate highway construction. They hoped some day to build a circumferential highway around the downtown area, where traffic was rapidly becoming an insoluble problem. They called it "Sunset Drive" and with typical Yankee initiative and determination began to map its route through the less built-up section northwesterly of the city.

When the State Highway Commission's consulting engineers moved in to begin planning the route of the Interstate they found the tentative line of Sunset Drive a helpful guide. Months were saved in getting projects awarded and actual construction underway.

The first contract awarded for Interstate construction went to Cianchette Brothers of Pittsfield, and that first shovel of earth we mentioned was moved in July, 1957. The project called for the construction of the Main Street interchange, the traffic facility which provides for the full movement of vehicles between Main Street and the Spur.

In the fall of 1957 two projects involving the Industrial Spur were let to J. R. Cianchette, Inc. which called for

Below is aerial view of the Main Street interchange, which provides full movement of traffic between Main Street and the Industrial Spur. It was the first project for Interstate construction awarded in the Queen City and the first to be completed.





The big cloverleaf interchange at the west end of the Industrial Spur (across view) will make it possible for traffic to move safely and swiftly from Spur to Interstate highway from Interstate to Spur, or, to and from connecting state highway.

building 2.5 miles of bituminous concrete highway and 3 bridges. The highway begins at the Main Street interchange and runs westerly through the raw land behind the city farm to Odlin Road and thence to an interchange at Hammond Street. Included in this section is a structure to carry the Spur over Webster Avenue, a structure in the cloverleaf interchange at Odlin Road and another in the interchange at Hammond Street.

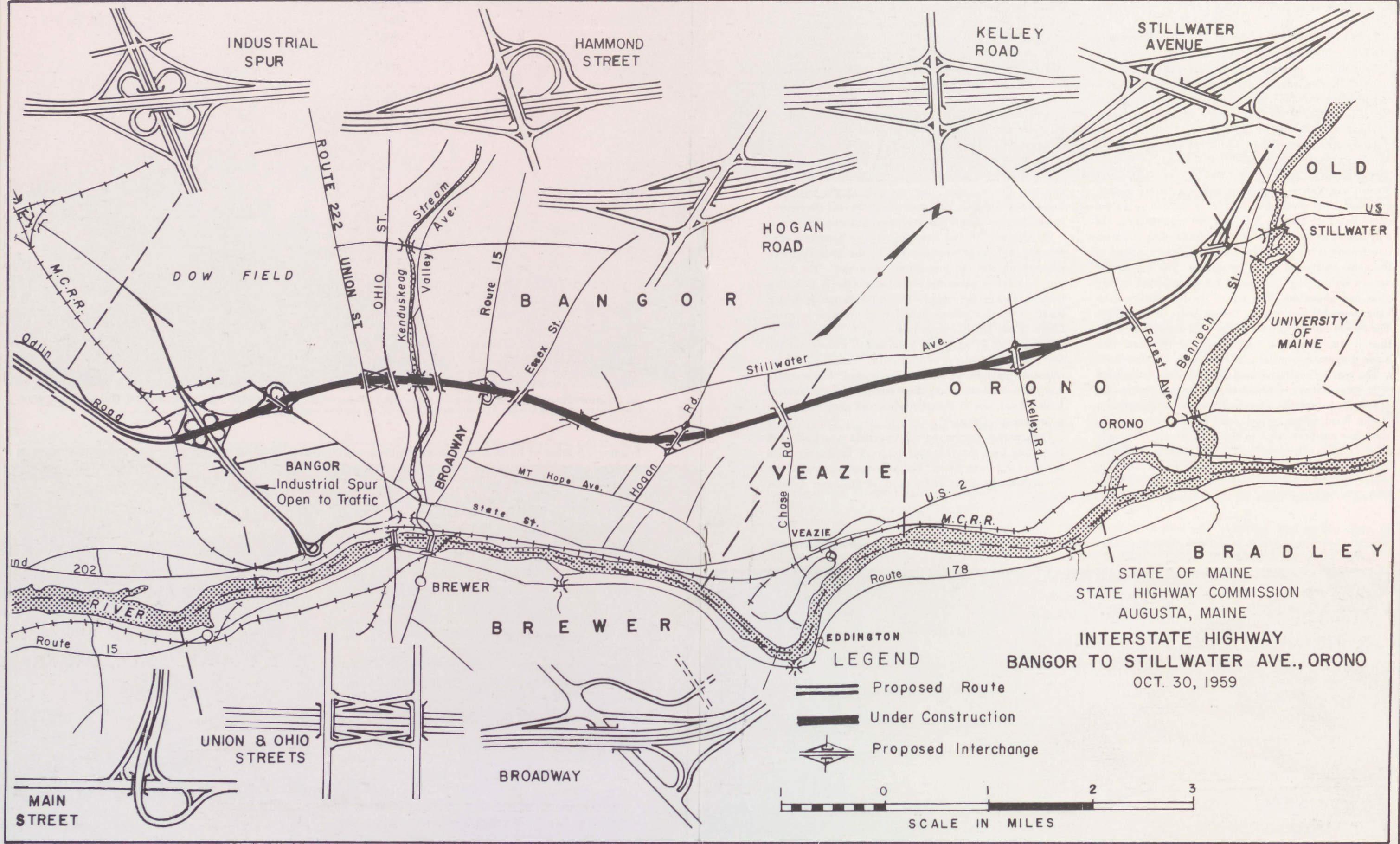
Work began December 2, 1957 and through the winter months construction crews laid drainage pipe and began the excavation for Webster Avenue. During the wet spring tons of earth and rock were moved and the air was blue with the exhaust of giant bulldozers, scrapers and ten wheel trucks.

The big cloverleaf provides full traffic movement between the Spur, the main line of the Interstate and connecting state highways in the area. It is planned to place two of the ramps into operation in the near future to facilitate the flow of traffic between the Spur and Hammond Street. Even though some work remains to be done the two interchanges will become functional, guiding vehicles through safe and speedier channels.

The main line of the Interstate highway runs northwesterly from the cloverleaf to Stillwater Avenue in Orono. The map shows that it is roughly parallel to the



Route markers like this will identify the Interstate highway in Maine from Kittery to Houlton and the Canadian boundary.



Penobscot River and looks not unlike an earthen channel for a smaller river plowed by Paul Bunyan and his pet ox.

Projects from Hammond Street to Hogan Road were let periodically beginning in March, 1958. Engineering plans called for moving buildings, mammoth quantities of earth, blasting ledges, building ramps for interchanges, and building structures to carry intersecting city streets over the expressway, the expressway over other streets and a bridge over Kenduskeag Stream.

All the structures are basically of the same general design—a concrete deck on steel beams supported by concrete piers and abutments. The bridge over Kenduskeag Stream and Valley Avenue presents a different appearance and is an unusual design. It is thought to be the only one of its kind in New England and certainly the only one of its kind in Maine. The outstanding construction feature is the use of concrete box girders instead of the more usual steel beams or girders. The big girders are not unlike long rectangular boxes supported by two piers and abutments. The top of the box girders overhang somewhat and serve as the roadways of the bridge. The reason for the unusual design was simply that at the time it was planned the high price of structural steel made it more economical to use concrete.

The grading contracts along the main line of the Interstate from Hammond Street to Kenduskeag Avenue are practically completed. Northwest from this point to Hogan Road, where projects were let at a later date, the work has not progressed to the same degree of completion. Construction features along this stretch of the work include two large ledge cuts, one northerly of Kenduskeag Stream and another east and west of the Essex Street overpass. Between Essex Street and Stillwater Avenue

crews excavated tremendous quantities of peat, replaced it with a five foot deep blanket of sand, then covered it with a layer of rock. This area is being allowed to settle and stabilize as long as possible.

A paving contract already let will provide for the surface on the main line from a point northerly of Hammond Street to just northeast of Hogan Road. Specifications for surfacing the Interstate highway in the Bangor area call for placing first a 9 inch layer of crushed gravel on top of the gravel base, which is put down during an earlier stage of the work. On top of this goes a five inch macadam base course and a final 3 inch surface of bituminous concrete. Quantities involved are hard to imagine. For example, just one mile of the four lane expressway will take 5000 tons of bituminous concrete—enough to pave over a thousand average home driveways.

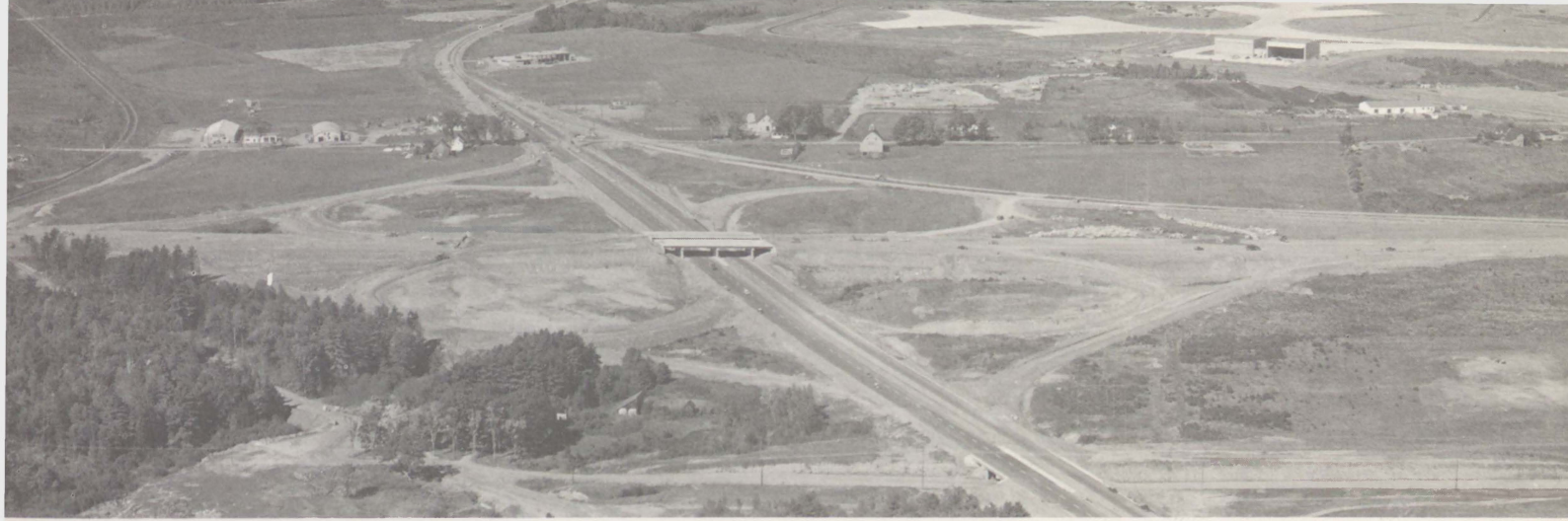
On October 7th two new projects for Interstate construction in Bangor were awarded by the State Highway Commission and are just getting underway. The highway contract will take the main line northerly to Kelley Road including the ramps of an interchange at Kelley Road. The other project calls for an overpass to carry Chase Road over the main line.

Projects to be let in the near future will extend the four lane expressway to Stillwater Avenue in Orono where an interchange will be constructed. Three structures will be built along this section—an overpass at Kelley Road, one at Forest Avenue and another at Stillwater Avenue, Orono.

Expectations are that by this time next year traffic will be rolling over the Interstate highway in Bangor from the Spur to Hogan Road. The following year should see the expressway in use as far north as Stillwater Avenue, Orono.

Below, the Interstate highway is carried over Kenduskeag Stream and Valley Avenue by unique, 3 span, concrete box girder bridge (center left). Structure at right carries Kenduskeag Avenue over the expressway.





Long view of cloverleaf interchange at west end of Industrial Spur; section of Dow Air Force Base at upper right. Spur runs from lower right under structure in center of interchange. Interstate highway runs across view.

GLOSSARY OF HIGHWAY TERMS

Roadway—The portion of a highway, including shoulders for vehicular use. A divided highway has two or more roadways.

Traveled Way—The portion of the roadway for the movement of vehicles, not including the shoulders or other lanes.

Traffic Lane—The portion of the traveled way for the movement of a single line of vehicles. All new, high traffic volume roads in Maine will have traffic lanes 12 feet wide.

Expressway—A divided highway for through traffic, with full control of access and with grade separations at intersections.

Grade Separations—A crossing of two highways, or a highway and railroad, at different levels.

Overpass—A grade separation where the subject highway passes over an intersecting highway or railroad.

Underpass—A grade separation where the subject highway passes under an intersecting highway or railroad.

Interchange—A system of interconnecting roadways and ramps, including a grade separation, enabling traffic to get on or off an expressway without crossing oncoming traffic lanes at the same level. Interchanges are referred to as cloverleaf, diamond, trumpet, etc., according to the pattern they form when viewed from above.

Ramp—A roadway connecting an expressway with an intersecting road.

Median—An area separating opposing traffic lanes.

Grade—Elevation of the roadway. A crossing "at grade"

is a crossing of two roads, or a road and a railroad, at the same level.

Gradient (also "grade")—The steepness of a roadway expressed usually as a percentage. For example a "6 percent grade" means the roadway will rise six feet for each 100 feet of horizontal distance.

Superelevation—Degree of banking a curve.

Radius of Curve—The term used in measuring the severity of a curve in a roadway. A 300-foot radius curve would be a sharp curve used on mountain roads, whereas a 2000-foot radius curve would be a long, gentle curve.

Acceleration Lane—A connecting lane leading from an on-ramp to the expressway and designed to enable the motorist to merge into traffic at the proper speed.

Deceleration Lane—Connecting lane from the expressway to an off-ramp, designed to enable the motorist to pull out of the main traffic stream and slow down to the speed limit of the ramp or roadway he is about to enter.

Right of Way—Total area needed for highway purposes. This includes the area needed for drainage, planting for erosion, visibility, future expansion, etc.

Control of Access—The authority to control the access to the highway facility is exercised by the State to give preference to through traffic by providing access connections with selected public roads only, and by prohibiting crossings at grade and direct private driveway connections, in the interest of expedient transportation and highway safety.

A D T—Abbreviation for average daily traffic.



View of Interstate highway construction looking northeasterly. Kenduskeag Avenue overpass is in left foreground. Moving toward top of picture expressway will be carried over Broadway, then under Essex Street; at very top is Stillwater Avenue overpass.

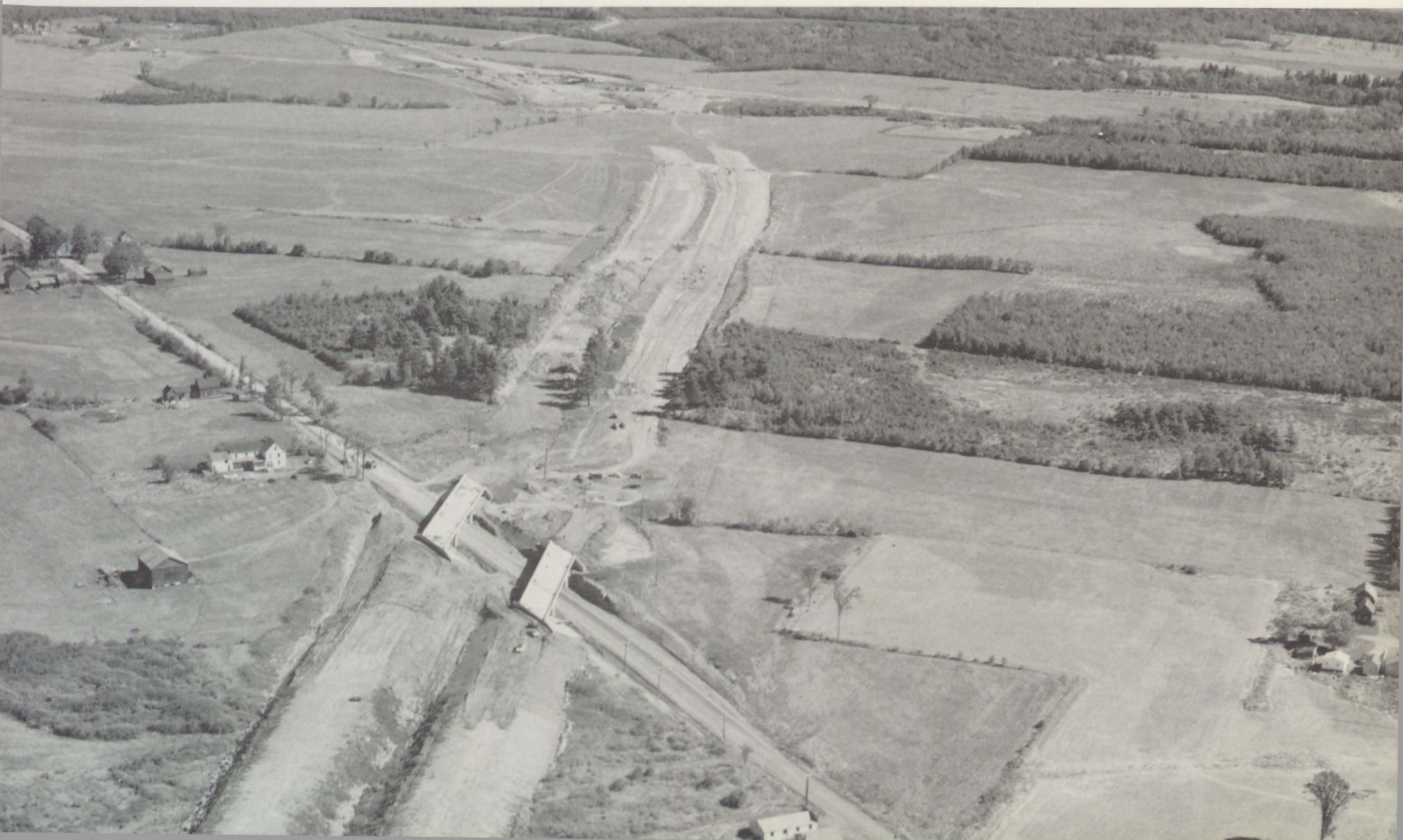
This four-span structure will carry Essex Street over the Interstate highway. Steel beams are in place and construction crews are placing the reinforced concrete deck. At this point and near Kenduskeag Stream men excavated huge quantities of rock.





Kenduskeag Stream Bridge is unique in that girders are constructed of cement concrete. The entire structure is 420 feet long with a clear span over the stream of 150 feet. It provides two, 29 foot roadways and 5 foot median.

Two structures carry Interstate highway over Stillwater Avenue, Bangor. At center of view, in distance, is Hogan Road interchange. Expressway runs almost east and west at this point.



INTERSTATE PROJECTS IN BANGOR THROUGH TO STILLWATER AVENUE, ORONO

PROJECTS COMPLETED OR UNDER CONTRACT

MAIN STREET INTERCHANGE

0.2 of a mile of ramps and a 5 span, steel and concrete overpass 315 feet long with two roadways 27 feet in width separated by a 4 foot median. The contract was awarded to Cianchette Brothers in June 1957.

Total Estimated Cost \$1,017,200

INDUSTRIAL SPUR & INTERSTATE HIGHWAY

2.5 miles four-lane divided highway from Main Street interchange to the Odlin Road cloverleaf interchange to just north of Hammond Street. Three overpasses: Spur over Webster Avenue, a 3 span, steel and concrete structure 115 feet long with two, 42 foot wide roadways and 8 foot median; at cloverleaf interchange, Interstate over Spur, a 4 span, steel and concrete structure 180 feet long with two, 38 foot wide roadways; at Hammond Street interchange, Hammond over Interstate, a 4 span, steel and concrete structure 200 feet long, with a 52 foot wide roadway and two, 5 foot sidewalks. The contract includes paving and was awarded to J. R. Cianchette in November 1957.

Total Estimated Cost \$3,788,000

HAMMOND TO ESSEX STREET

Three sections of four-lane divided highway totaling 1.5 miles. First section begins 0.2 of a mile northeast of Hammond Street and extends to just southwest of Ohio Street. Second section starts just east of Valley Avenue and extends to just west of Broadway, and third section starts just east of Broadway and extends to just west of Essex Street. Two overpasses: Union Street over Interstate, a 2 span, 195 foot steel and concrete structure; Kenduskeag Avenue over Interstate, a 4 span, 225 foot long steel and concrete structure. Ramps for interchange at Broadway, a short section of Broadway, and the relocation of a section of Alden Street. The contract was awarded to Seaboard Engineering Company, Inc. in June 1958.

Total Estimated Cost \$2,137,600

OHIO STREET OVERPASS, INTERSTATE HIGHWAY & KENDUSKEAG STREAM BRIDGE

Just over 0.4 of a mile of four-lane divided highway from Ohio Street to Kenduskeag Stream. Ohio Street over Interstate, a 2 span, steel and concrete structure 186 feet long with 52 foot wide roadway and two, 5 foot sidewalks. Kenduskeag Stream Bridge, a 3 span, concrete box girder structure 420 feet long with two, 29 foot roadways and 5 foot median. The contract was awarded to the Westcott Construction Corp. in March 1958.

Total Estimated Cost \$1,313,400

BROADWAY OVERPASS

Interstate highway over Broadway, a 3 span, steel and concrete structure with two roadways separated by an 8 foot median. The northbound roadway is 44 feet wide, the southbound 38 feet wide. The contract was awarded to H. B. Fleming, Inc. in April 1958.

Total Estimated Cost \$ 512,340

ESSEX STREET TO STILLWATER & ESSEX STREET OVERPASS

0.6 of a mile of four-lane divided highway from a point 800 feet west of Essex Street extending to a point 450 feet east of Stillwater Avenue. Essex Street over Interstate, a 4 span, steel and concrete structure 160 feet long with 26 foot wide roadway, and two, 3 foot sidewalks. The contract was awarded to J. R. Cianchette in July 1958.

Total Estimated Cost \$ 580,700

STILLWATER AVENUE OVERPASS

Interstate over Stillwater Avenue, two, 3 span steel and concrete structures 200 feet apart; the northbound structure will be 215 feet long, the southbound structure 250 feet long; both have 30 foot roadways. A thousand foot section of Stillwater Avenue that runs beneath the structures will be rebuilt. The contract was awarded to H. B. Fleming, Inc. in August 1958.

Total Estimated Cost \$ 399,700

STILLWATER AVENUE TO HOGAN ROAD & HOGAN ROAD INTERCHANGE

1.3 miles of four-lane divided highway beginning about 300 feet northeast of Stillwater Avenue and extending to a point about a third of a mile northeast of Hogan Road. Hogan Road interchange consists of necessary ramps and 6 span, steel and concrete structure 450 feet long with two, 38 foot roadways and two, 3 foot sidewalks to carry Hogan Road over the Interstate. The contract was awarded to J. R. Cianchette in January 1959.

Total Estimated Cost \$1,281,300

HOGAN ROAD TO KELLEY ROAD & KELLEY ROAD INTERCHANGE

3.3 miles of four-lane divided highway beginning 0.3 of a mile northeast of Hogan Road in Bangor and extending to a point 1100 feet northeast of Kelley Road in Orono. This contract, which includes building the necessary ramps for an interchange at Kelley Road but not the structure, was awarded to Thomas DiCenzo in October 1959.

Total Estimated Cost \$2,500,000

CHASE ROAD OVERPASS

A 5 span steel and concrete structure 300 feet long with a roadway width of 24 feet to carry Chase Road over the Interstate. This contract includes relocating and building 0.6 of a mile of Chase Road as approaches to the overpass. The contract was awarded to J. E. McEachern Co., Inc. in October 1959.

Total Estimated Cost \$ 260,000

HAMMOND TO HOGAN ROAD

Paving of Interstate highway from 0.2 of a mile northeasterly of Hammond Street to a point just southwest of Hogan Road including the scissors interchange between Union and Ohio Streets, the Broadway Street interchange and two ramps at the Hogan Road interchange. The contract, which includes all the necessary work to complete this section of the Interstate except for the placing of route markers and directional signs, was awarded to The Bridge Construction Corporation in April 1959.

Total Estimated Cost \$1,361,700

INDUSTRIAL SPUR, CLOVERLEAF INTERCHANGE AT BULGE TO HAMMOND STREET AND CONNECTING STATE HIGHWAYS

The fabrication and erection of directional, informational and warning signs at the Main Street interchange, the Industrial Spur interchange, the Hammond Street interchange and the state highways connecting at these points. The contract which involves a total length of 2.7 miles was awarded to The National Fence Company in May 1959.

Total Estimated Cost \$ 102,281

PROPOSED PROJECTS

KELLEY ROAD TO STILLWATER AVENUE, ORONO

2.4 miles of four-lane divided highway beginning at Kelley Road and extending to Stillwater Avenue. This contract includes two of the ramps for the interchange at Stillwater Avenue.

Total Estimated Cost \$1,900,000

KELLEY ROAD OVERPASS, ORONO

A 5 span, steel and concrete structure 300 feet long with a roadway width of 28 feet to carry Kelley Road over the Interstate. About 1200 feet of Kelley Road will be rebuilt as approaches to overpass.

Total Estimated Cost \$ 300,000

FOREST AVENUE OVERPASS, ORONO

A 5 span, steel and concrete structure 290 feet long with a roadway width of 24 feet to carry Forest Avenue over the Interstate. About 1800 feet of Forest Avenue will be rebuilt as approaches to overpass.

Total Estimated Cost \$ 260,000

STILLWATER AVENUE OVERPASS, ORONO

A 4 span, steel and concrete structure 285 feet long with a roadway width of 28 feet to carry Stillwater Avenue over the Interstate. About 1800 feet of Stillwater Avenue will be rebuilt as approaches to overpass.

Total Estimated Cost \$ 300,000

HOGAN ROAD, BANGOR, TO KELLEY ROAD, ORONO

Paving of about 4 miles of Interstate highway from Hogan Road to Kelley Road including two ramps at Hogan Road Interchange and two ramps at Kelley Road interchange.

Total Estimated Cost \$ 600,000

KELLEY ROAD TO STILLWATER AVENUE, ORONO

Paving of 2.6 miles of Interstate highway from Kelley Road to Stillwater Avenue including portion of ramps in interchanges.

Total Estimated Cost \$ 350,000

Grand Total \$18,964,221