HIGHWAYS
AND THE
LAND SURVEYOR

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PENNSYLVANIA SOCIETY OF LAND SURVEYORS

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## HIGHWAYS AND THE LAND SURVEYOR

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A. Easement for Highway Purposes v. Fee Simple Absolute

A.1. – 3.

There are three basic statutes or groups of laws which control the powers and duties of the PA. Department of Transportation in relation to acquiring property for public transportation purposes. They are: 1) Title 36 of Purdon's Pa. Statutes entitled "Highways and Bridges", which contains the State Highway Law of 1945 as well as other laws pertaining to the Department and also laws concerning acquisitions by political subdivisions such as townships, boroughs and cities; 2) The administrative Code of 1929, as amended, which spells out the powers and duties of many government agencies, including the Department; and 3) the Eminent Domain Code of 1964, which provides the procedure to be used in most all condemnation proceedings, including those by the Department.

The Eminent Domain Code, which can be found in Title 26 of Purdon's Pa. Statutes, does not in any way determine the nature of the interest or title acquired by a condemnor. It is merely a procedural law: It sets forth the manner in which condemnors are to take property through the power of eminent domain and the way in which just compensation, or payment, is to be determined for condemnees. To ascertain what kind of title, such as fee simple, easement, or other interest in land has been acquired by a condemning authority, one must be familiar with the statutory authorization under which the condemnor acts. In the case of the Department, the statutory authorization is predominately found in the Administrative Code and the State Highway Law.

Prior to 1979, the power of the Department of Transportation, or the Department of Highway as it was called before 1970, to acquire property for state highways was primarily based on Section 210 of the State Highway Law. That law provides that the Department can change, alter, or establish the width, lines, location, and grades of any state highway by submitting a plan of the proposed project to the governor, and after his approval filing the plan in the Department as well as recording it in the Office of the Recorder of Deeds of the proper county. Section 210 provides that such action shall be considered a condemnation of an easement for highway purposes from all property within the lines marked as required for right of way and the condemnation of an easement of support or protection from all property within the lines marked as required for slopes.

The interest acquired in land taken for right of way under Section 210 is not a fee simple’s absolute title, that is, complete possession, use, control and ownership of the surface of the land as well as the subsurface below and the air space above the surface. Rather, the right of way interest acquired under Section 210 is an easement for highway purposes. This interest in land can be generally defined as the exclusive right to possession and use of the land for highway purposes. It confers onto the Department a right to the surface of the land, to a sufficient amount of subjacent strata to give adequate support to the highway, and to the air space above the land acquired.
The most significant difference between an easement for highway purposes and an interest in fee simple is that when the need for the highway easement no longer exists, complete title to the land over which the easement lies reverts back to the original condemnee or his successor in title. The practical effect of this possibility of reverter is that a condemnee is paid for the value of a fee simple interest when his land is acquired and yet, if and when, the use for which it was acquired ends, the condemnee or his successor in title gets the entire possession and use of the land back again for free. This situation was changed by the Pa. Legislature in 1979 when it amended the Administrative Code of 1929, which is found in Title 71 of Purdon's Pa. Statutes, by passing what is called Act No. 100.

A.4.

Act 100 empowers the Department to acquire land for any and all transportation purposes in fee simple or such lesser estate or interest as the Department shall determine. It also allows the Department to acquire the fee underlying any easement previously acquired by it. By allowing the acquisition of fee simple interests, Act 100 allows the Department to put itself in a similar position of ownership as any other person or organization which buys and has property. The only difference is that Act 100 does set up certain procedures to be used in disposing of land owned in fee simple by the Department when it is no longer needed for present or future transportation purposes. These provisions do provide for payment to the Department by the purchaser of the unneeded land though, in opposition to the situation where only an easement for highway purposes has been acquired and the land automatically reverts back to the holder of the underlying fee for free when the highway is vacated.

To determine what interest the Department has taken in any given situation, a fee simple absolute, an easement for highway purposes, or some other lesser interest or interests, it may be necessary to look at the right of way plans and other documents recorded in the county in which the property acquired is located. Of course, if the property was acquired amicably, without the need for an actual condemnation, the deed of conveyance between the landowner and the Department should state the interest transferred. If an actual condemnation has occurred though, the declaration of taking is the document to consult.

A declaration of taking is the document filed in the prothonotary office of the proper county which under the Eminent Domain Code, is the only way to officially initiate a condemnation proceeding. The filing of this document is accompanied by the filing of a notice of condemnation in the recorder’s office which is indexed in the deed indices showing the condemnee as the grantor and the condemnor as the grantee. The declaration of taking must contain, among other things, a specific reference to the statute authorizing the condemnation and to the action by which the declaration of taking was authorized, including the place where the record of this action may be examined. In the Departments case, the declaration of taking usually refers to Act 100 of Section 210 and the recorded plans in the recorder of deeds office.
The right of way plans constitute the Department's authority to proceed with the acquisition of right of way and to file declarations of takings. These plans are the legal record indicating the location, the extent, and the character of any acquisition of right of way and are therefore drawn with an accuracy commensurate with the construction plans to be used by the contractor in actually building the highway. In fact, the right of way plans for each section of the project must be coordinated with the construction plans for that section. Also, the horizontal geometry and right of way lines must be the same on the construction and right of way plans.

The right of way plan has a title sheet which includes a reference to the statutory authority under which the plans are prepared and authorized. In the past this reference has usually been to Section 210, but since 1979 it also reads to Act 100. If the highway is to be limited access, the title sheet also refers to the Limited Access Highway Act of 1945, which is also in Title 36 of Purdon's Pa. Statutes. In all cases, the title sheet refers to the section of Eminent Domain Code mentioned before, which requires a specific reference to the authority for the acquisition.

On plans prepared since 1979, a note appears that reads "All required right-of-way for this project will be acquired in Fee Simple unless otherwise noted. Areas, if any designated as required for other that right-of-way will be required in such lesser estate as designated."

On plans prepared before 1979, this note reads, "The estate to be acquired by the Commonwealth encompasses a surface easement unlimited in vertical dimension except in those areas, if any, where the detail plan designates an exception."

Exceptions will be discussed later.

A.4.a.
Insofar as an elevated roadway situation is concerned, the Department now specifically provides in these situations that only an aerial easement is taken. Where this is done a note on the typical section sheets of the right of way plans states that only an aerial easement is to be acquired in the designated area which shall include a surface easement unlimited in vertical dimension for the accommodation of piers and other appurtenances, plus a temporary easement for construction and for storage of materials during construction. It then lists certain limitations imposed on the property beneath the area affected by the aerial easement. Among these restrictions are that no use will be made of the property which would endanger the structure of health, safety, or welfare of the traveling public and that the Department shall have the right to enter onto the property to inspect and maintain the structure. If only such an easement is taken on a property one is surveying, that fact should be noted on the survey.
B. Limit of Slope Line vs. Right of Way Line

B.1.
An area for slope is an area beyond the required right of way for the cart-way lines. It is required to accommodate cuts and fills and the construction of structures which extend beyond the right of way limits. The interest acquired by the Department in this area for slope is less than that acquired through an easement for highway purposes, and of course, less than that acquiring title in fee simple absolute.

B.2.
In this area for slopes, the Department has only acquired an easement of support and protection. That is, the landowner can make any use of that property whatsoever, so long as that use is not inconsistent with the necessary support and protection of the highway. For this reason, any construction by an abutting property owner in an area acquired for slope does not require the obtainment of a permit from the Department, and is legally permissible as long as the construction does not interfere with the purpose of the slope, namely, the lateral or side support of the highway. The authority of the Department to acquire areas for slope is found in Section 210 of the State Highway Law. That law says that the right of way plans recorded in the county shall be considered as the authority to acquire an easement for highway purposes from all property within the lines marked as required for right of way and the authority to acquire an easement of support and protection from all property within the lines marked as required for slopes. This is also one of the lesser interests authorized by Act 100. The Department's right of way plans normally show a "Legal Right of Line", which is the edge of the part of the roadway which the Department already has an interest in. Of course, if the project involves a new highway or the relocation of an old highway there may not be any legal right of way line. The plans also show the "Required right of way line." This is the new edge of the Department's easement for highway purpose or fee simple interest. The area between the legal right of way line and the required right of way line is the property which the Department is in the process of acquiring as an easement for highway purposes or in fee simple, as the case may be. If the highway is or is to be limited access, that is noted on the legal and or required right of way lines. The required right of way line becomes the legal right of way line after the property in between has been acquired.

Where it is determined that some property is needed only for sloping, then the right of way plans show a limit of slope line. Only an easement of support and protection is acquired in the land between the required right of way line and legal right of way line.

In addition to the specific interest of support and protection acquired when an area for slopes is acquired, there is a general duty of support that goes along with all easements for highway purposes. Where an area is specifically acquired for sloping, the Department is merely saying that, although it doesn't need the land for the actual cart-way of the road and therefore does not want to pay for a complete easement for highway purposes, it
deems it necessary to specifically recontour that area to supply the highway with the necessary support and protection. But even where no area for slope is acquired, there is a duty on owners of property abutting a public highway not to withdraw the vertical or lateral support necessary for the highway.

B.3.a.
This general duty to maintain the support of a highway has been held by the Pa. Supreme Court to be absolute. That is, when an easement for highway purposes is acquired, it includes the right to have that highway sufficiently supported by the subjacent strata of the ground on which the highway is actually built. The Supreme Court has stated it this way: When the Department condemns for highway purposes it says in effect to the owner, Our right to the underlying support of the highway is absolute; you will be fully compensated for our taking of it to the extent your property has been depreciated thereby and if you so impair this support as to cause the road to subside under any future authorized public use of the highway, you will be answerable therefore. This duty of support not only includes the duty not to remove the subsurface of the land immediately under the area acquired for right of way or slopes, so as to cause the roadway to cave in, but also includes a duty not to impair the support of the highway by excavations upon the land adjoining the highway which is outside of the right of way or slope lines. That is, although there is no duty to affirmatively supply lateral support where no area for slope is specifically acquired, there is a duty not to withdraw the existing lateral support such as to impair the safety or convenience of travel upon the public easement. In other words, an adjoining landowner cannot change the contour of his own property in any way that will damage the support necessary for the highway.

A similar rule as to support also applies where a fee simple interest is acquired in land used for highway purposes. Of course, in this situation, no problem as to vertical support is present since the Department owns all of the soil directly under the surface as any other landowner does. But also, there is by law a duty on all landowners not to injure this neighboring properties by negligently withdrawing the existing lateral support needed to support those properties and any artificial additions placed thereon. This rule would apply to highway lands acquired in fee simple.

B.3.b.
The courts of Pa. have held in particular circumstances and conditions that the following actions by a landowner are negligent in regard to his neighboring property owners: to excavate sand, gravel, a loam, or other friable soil otherwise that in sections; not to furnish temporary support by shoring; to fail to give timely and sufficient notice of the proposed excavation; to maintain an excavation under such conditions or for such a length of time as to expose the adjoining land with artificial additions to unreasonable risk of harm by exposure to rain, frost or weathering; to make use of improper instrumentalities or improper use of proper instrumentalities; to employ incompetent workmen and to neglect to ascertain in advance whether the excavation as planned is likely to expose adjoining lands with artificial conditions to unreasonable risk of harm. Since the acquisition of a fee simple interest puts the Department in a similar position as any other landowner, these rulings of law apply to all
property owners with land next to the land so acquired in fee simple. There is also the distinct possibility that, since the land acquired in fee simple is still being used for public highway purposes, the absolute duty of support discussed above would also apply in fee simple situations.

B.3.c.
Most problems with support occur where the subsurface of an area acquired for an easement for highway purposes contain some valuable mineral such as coal or natural gas. Insofar as coal is concerned, the State Mining Commission has been set up as the body which determines the amount of underlying and or adjacent coal, if any, which must be left in place for furnishing vertical and or lateral support to the land acquired for the highway and that which may be removed, if any. Any time that there is mineable coal under lands acquired by the Commonwealth, the Commission must be convened to determine these matters of support.

Very often the Department specifically states in its right of way plans that the landowner may remove the minerals lying a certain distance under the easement for highway purposes. The depth of permissible mining operations is often set at 300 feet, but may vary according to the type of rock, possible voids and other circumstances present. Of course, if the mineral is coal, the State Mining Commission must approve the scheme. Where the Department does not intend to allow mining so as to minimize the amount of money it may pay for land, the following note is placed on the right of way plans: "The estate to be acquired is limited in vertical dimension so as not to interfere with deep mining of minerals, including removal of gas and oil by means of wells located off the right of way. The owners of the minerals may remove any or all of same located beneath the minimum depth on the appropriate detail sheets."

The Department only acquires a specific easement of support and protection where it actually plans to enter onto the surface of the land to contour it in order to provide that support and protection. Where this is done at some point outside the required right of way lines, the right of way plans show it as an area required for slopes. If all of the sloping is to be done within the right of way lines, then no limit of slope lines are shown on the right of way plans. Of course, all lands outside the right of way lines where there is an easement for highway purposes is still under the absolute duty of maintaining lateral support of the highway, and land outside the right of way lines where there is a fee simple interest in the Department is at least under the duty not to negligently withdraw the lateral support of the highway.

When doing a survey of property adjoining a highway, the limit of slopes line, as well as the required right of way line, whether it was acquired for limited or fee access should be plotted if the Department has, in fact, only acquired an easement for support and protections over some of the property. This is of course because the restrictions to the use of the land by the owner of the underlying fee is different for the two different kinds of easements. The easement for highway purposes acquired within the required right of way lines essentially excludes the fee owner from any use of the surface of that land, whereas, the easement for slopes acquired with
the limit of slope lines only excludes uses inconsistent with the necessary support and protection of the highway.

For instance, a lot was at a lower elevation than the roadway and part of it had been acquired by the Department only as an area for slope. The landowner wanted to fill in the lot and pave it. Since the fill would encroach on the area acquired for slopes, the landowner came to the Department, although he was not required by law to do so. It was determined that adding ground to the slope going up to the highway would in no way take away anything from the necessary support and protection of the highway, it was therefore permissible to use that land. In fact, withdrawing of ground from an area acquired for slopes would be permissible provided the land owner took precautions, such as building a retaining wall, so as not to make the road subside or injure it in anyway.

B.4.
Another interesting aspect of this situation was that the Department had its right of way fencing located on the limit of slope line, and of course its location interfered with the landowner's plans to improve this lot. He sought permission to remove the fence to the required right of way line. The Department had no alternative but to grant this request. Normally right of way fences are located 1' or 2' inside the required right of way line. They usually are not placed outside of that line.
C. Surveying to Right of Way Line vs. Centerline

C.1. If a right of way has been acquired in fee simple, then the required right of way line is like any other property boundary line and should be dealt with in a survey of abutting properties in a like manner. But where only an easement for highway purposes has been acquired, the survey of an adjoining property must be approached differently. This is because of the revertionary interest which the underlying fee owner retains in the land which is only acquired as an easement for highway purposes.

C.2. Section 2131 of Title 36 of Purdon's Pa. Statutes entitled "Highways and Bridges" specifically states that whenever any highway is vacated according to the law, the adjoining owner or owners shall be authorized to reclaim the same, to the center thereof, unless the ground was originally taken in unequal proportions from the then owners thereof, in which case the adjoining owners shall reclaim the proportion contributed by such owners, or by those under whom they have derived their titles. In other words, the vacation of an easement for highway purposes restores to abutting owners their portion of that land over which the former right of way extends, free from the servitude of the public easement.

C.3. There is public confusion in this area of the law as to the terms vacation and abandonment. When a state highway is abandoned as such, the land does not revert back to the underlying fee owners, but rather, simply to the political subdivision in which the road is located. That is, the Department says that it no longer needs or wants the roadway as part of the state's highway system, but that it should be kept open and the burden of doing so is a local matter to be done by the local government. When the Department decides to do this because, for example, another better road has been built to replace the old highway, the Department is obligated to improve and repair the old highway so that it is in first class condition when taken over by the local government. In this situation, the easement for highway purposes remains in tack, the only difference being the political agency responsible for its maintenance. In short, the abandonment of a state highway is merely the transfer by the Department of the jurisdiction and maintenance of an existing state highway to a township or municipality.

The vacation of a state highway is different from merely abandoning it. In this situation, the Department is saying that the old roadway is not needed for public highway purposes, this easement ceases to exist more or less and total ownership of the land reverts back to the person who originally owned the lands or his successor in title. That is, the owner of the underlying fee. To justify the vacation of a highway, it must be determined unnecessary for public use and travel, or burdensome or dangerous, taking into consideration the convenience of access to the new highway of the properties abutting the old highway to be vacated. Where a vacation does occur and the public servitude lifted, a private easement to that right of way remains for any land which would otherwise be landlocked.
C.4.
Because of the possibility of a reverter upon vacation, a survey of property adjoining a highway should be plotted as to the property lines of the parcel as they are without considering the right of way lines. Of course the right of way lines of the highway should also be shown on the survey. The simple reason for surveying it this way is that if the highway is ever vacated, all that land previously within the right of way lines which is within the property lines as determined through the chain of title will revert back to the owner of that underlying fee. Very often though, a deed calls for a public highway or street or the edge or side thereof as a boundary. In this situation, the law of Pa. is well settled that the grantee takes title in fee to the center of that highway or street, if the grantor had title to that extent and did not expressly or be clear implication reserve to himself fee title to that part of the land sold. in other words, if the chain of title goes back to the owner of the land when the right of way was originally acquired for or dedicated to public use, and nothing the chain of title indicates that any previous owner reserved the fee title to the land on which the highway was built to himself, or that the original owner owned more of the acquired or dedicated land than to the center thereof, then the landowner by law has fee title to the center of the highway, even if the previous deeds only refer to the road or side thereof.

Tying this centerline rule of construction with the rule of reverter then, the settled law of Pa, is that when a public road or highway is vacated, the adjoining owners may claim to the center of the vacated road unless the ground was originally acquired or dedicated in unequal portions from the owners, in which case the adjoining owners may claim in proportion contributed by them or their predecessors in title.

C.5.
The most common situation where this centerline rule comes into effect is where a large property has been subdivided and lots have been sold according to a plan calling for streets. If the streets shown on the plans are properly dedicated to public use by the developer and properly accepted and opened for such use by the governing body, then the lot owners acquire the fee to the center of the street unless the deed says otherwise. The importance of this situation is that a survey of such a property should use the centerline of the roadway as the property line, while also showing the right of way lines or extent of the easement for highway purposes. This is because the landowner does own the fee title to the centerline of the right of way, even though the area between that line and the right of way line is presently subject to the easement for highway purposes, and, if the street is ever vacated, full ownership will revert to him, the underlying fee owner.

C.6.
Insofar as tax liability and surveying to the centerline or the original property lines is concerned, the survey should be done as outlined above. That is, it should be tied into the original property lines or the centerline, as the case may be, even if property taxes for the political subdivision are based on total acreage. This is of course because the landowner does own the fee simple interest in all of this land. Of course, the area over which an easement for highway purposes lies should also be noted since it may be possible to tell this to the taxing
authority and thereby receive a tax exemption for that portion. If it is thought that no such exemption would be
granted, then the survey could stick just to the right of way lines since, upon vacation, the property owner would
still be able to claim the portion which by law he has a fee interest in. The only problem with this approach is that
it would be more difficult to ascertain just what the property owner does have fee title to if the survey is not tied
into the original property lines or centerline, as the case may be.

C.7.
Another thing to note is that where a paper road dedicated to public use is called for as a boundary, but the road
is unopened, the grantee of the land takes a fee only to the edge of that unopened road. The fee to the bed of
the road remains in the original grantor who plotted the road in this situation, but the grantee or his successor in
title does acquire an easement to use that land for private access purposes. In other words, the transfer using
the unopened road as a boundary creates a private easement over the bed of that unopened road, but not a
public easement such as to bring into effect the center of the road rule. This same rule applies where the street
or alley or road called for as a boundary is not a public highway nor dedicated to public use. That is, the
landowner owns in fee only to the edge of the private right of way, called for as a boundary having only a private
easement by implication over the bed itself. These rules would naturally control the location of the property line
when surveying properties with these characteristics.

C.8.
It is also important to note in this discussion, that there is a law in Pa. which provides that any street or alley laid
out by any person in any village or town plot or plan of lots which is not opened to or used by this public for 21
years after its being laid out cannot be opened for public use without the consent of the owners of the land on
which it was laid out. The purpose of this law is to relieve land upon which streets have been laid out by a
developer, but not used, from the servitude imposed by the public dedication. Although this rule prevents the
opening of the street for public use, it has been held by the Pa. Supreme Court not to terminate the private
easements in such an unopened street or alley. This private easement to use the land so designated for access
is the result of the developer having sold the property under the plans showing a street. Since it is the result of
private contractual rights, it is not affected by the local government's failure to act upon the dedication of the
street or alley within the 21 year period. Again, these principles of law would affect the location of the property line
when surveying properties with these characteristics.

In conclusion to this section, note that this 21 year statute of limitations as to opening a roadway does not apply
to land dedicated for use as a state highway. This was decided in a 1968 Pa. Supreme Court case entitled
Keiffer Appeal. There, Keiffer owned a property in Mercer County which had been purchased according to a
subdivision plan recorded in 1923. The plan showed the right of way dedicated for the street abutting his
property as 100 feet wide, 50 feet of which was on either side of the centerline thereof. The street was part of the
state highway system and had only been opened and used by the public to a width of 33 feet, 16.5 feet of which
was on either side of the centerline of the roadway. In 1964 the Department decided to widen the street to 70 feet, 35 feet of which would be on each side of the centerline.

Keiffer claimed that he should be paid for the additional land to be used for widening the roadway since 21 years had passed since the 100 foot right of way had been dedicated and nothing had been done to accept that dedication except as to the 33 feet actually used before. The Superior Court of Pa. held that the 21 year statute of limitations did not apply to land dedicated to the Department and therefore the Department had an easement for highway purposes over the entire 100 feet as dedicated.

In addition to its holding that the 21 year statute of limitations does not apply to the Department, the Keiffer ruling also stands for the principle that the mere fact that the entire width of an easement acquired for or dedicated to highway purposes, is not in fact, totally used, does not constitute a vacation of the part not used. It may be needed for future highway purposes, and, moreover, a vacation can only occur through some definite official action declaring the roadway vacated. In other words, one cannot gain title by adverse possession against the Commonwealth.
D. Determining Location of Right of Way Line

D.1. There is much case law, as well as some statutory law, on the question of boundary disputes between landowners and condemning authorities such as the Department of Transportation. Certain presumptions have been created in law concerning official plans and other types of evidence of location, but the bottom line is that the precise position which a boundary line, such as a right of way line, actually occupies on the ground is generally a question of fact which in a legal proceeding is decided by the jury upon all of the evidence produced. Surveying evidence is one of the most important types of evidence that is used in such disputes.

D.2. Initially, it is important to note that monuments defined as some tangible landmark established to indicate a boundary which has certain physical properties such as visibility, permanence, stability, and a definite location independent of measurements, are generally of the highest value in determining matters relating to boundary locations. Insofar as highways are concerned, the legal right of way line is very rarely monumented and although the centerline of a roadway is sometimes marked, after years of use, reconstruction, and maintenance, the center markings become obliterated and not recognizable.

The truth of the matter is that the Department has no obligation under any law to monument its right of way or center lines. Its only obligation is to file the official right of way plan in the county courthouse showing the location of such lines.

There is one instance in which the Department does monument its property corners. That is when an area is taken for the construction of a roadside rest area. The reason for this seems to be that the statute authorizing the acquisition of land for such purposes, found in Title 36 of Purdon's Pa. Statutes, specifically states that such land should be acquired in fee simple. Since the Department owns this land like any other landowner, monumenting is deemed proper and necessary. Where only an easement is taken though the underlying fee title remains in the landowner so monumenting is not as proper or necessary.

D.3. Right of way plans prepared in the last 20 years or so do contain a type of monumenting which can, in some limited situations, be used to locate light of way lines. The detail sheets of these plans show survey references for certain points on the roadway such as points of intersection, points of tangent, and point of curves. These points are referenced to nearby physical monuments such as trees, manholes, and the corners of buildings. The right of way lines are then referenced to these tangents and simple curves and tied into the centerline or baseline of the roadway it is serving. These reference lines are indicated on the right of way plans as either survey and right of way baselines or survey and right of way centerlines.
A baseline is a locational line used on divided highways. They are usually placed at the median edge of pavement of each of the 2 divided lanes. A centerline is not used in these situations since the width of the area between the 2 divided lanes is often not uniform. In spiral curve areas, the Department provides that the right of way line should be a straight line or series of straight lines, if necessary, tied to the spiral centerline. If more than one straight line is used, the lengths and bearings of the right of way lines are to be indicated on the plans.

In any case, the failure of condemning authorities to physically monument their right of way lines has led to much litigation as to the actual location of such boundary lines. An important principle of law in this regard is that the official state highway plan constitutes the boundary line between a person's property and the highway right of way as a matter of law, but that the question of where that line exists on the ground may be a question of fact. That is, in ascertaining the centerline and sides of a highway, it is the road as actually opened to the public that determines its location, rather, that the courses and distances and other information designated in the plan or other documents filed to show that location. In other words, where the controlling legal right of line, as established by an official highway plan, actually runs on the ground depends on all of the competent evidence presented as to the actual location.

The following statement by the Pa. Supreme Court in a 1958 case shows, a bit harshly I'm afraid, the status of the official paper plans in these situations. The court said: "A highway plan, even if approved by the governor of the Commonwealth, is still only a piece of evidence subject to every inquiry and testing which the laboratory of the courtroom affords. A plan is a paper containing words, sketches and lines. If the person of persons who write the words, produce the sketches, and draw the lines make mental errors, these error do not cure themselves by being transferred to paper. A mathematical or engineering inaccuracy gives no purging impeccability because repeated several times in different forms."

The above discussion is tempered a bit by the rule of law that if there is no evidence showing that the highway was not actually opened or worked as legally directed or allowed, it is assumed that the roadway has been opened according to the official plan and therefore the plan controls the location of the lines. In either case though, the centerline of the road as opened on the ground is the point from which this sides are to be determined.

There is a rule of law which says in determining the distance from the centerline as opened to the sides or right of way lines, the width fixed by the public authority which opened the road is conclusive. That is, even if the entire width as designated in a plan or other document acquiring the land is not used for a long time, the condemnor still has a right of way for that entire width. Of course, the location of the right of way lines is tied to the location of the centerline as actually opened on the ground, which is a question of fact. But even so, the width is that designated. As a practical matter, the typical section sheets of the Department's right of way plan contain a general note stating the legal width of the roadway and the basis of this legal width, including the date.
of the plans, ordinances, or other documents designating such and the places and dates of these records. If only one width is allowed by this statute, then it cannot be denied that the right of way is that wide, but where there is both a maximum and a minimum width, this rule cannot apply. In these situations, it is presumed that the maximum width was acquired, in the absence of proof to the contrary. Of course, this presumption can be rebutted by competent evidence by maps, deeds, releases, or acts showing that it was not the intention of the original parties to take all that was permitted by law. For example, there are several cases holding that where there are no public records designating that the maximum width was originally acquired and the evidence shows that there are no markings on the ground as to location of the right of way lines except for fences erected long age by adjoining owners which stand at approximately the lines of the minimum width, then only the minimum width was originally acquired. The same type of physical evidence is important in determining the width of roads where not only are there no public records available as to the width originally acquired, but there isn’t even a statute by which the road was opened giving the maximum or minimum width allowed. A 1938 Pa. Supreme Court case entitled Fritchey vs. Comm. involved these elements. There, the road in front of the Fritchey property was found to be 33 feet wide on the basis that although there was no fencing or wall in front of that property, there was old fencing on properties next to it which were 33 feet apart. Since no public records or statute existed, the court held that the legal width of the road was as it appeared on the ground between the fence lines. The court further noted that this fencing argument was bolstered by a statute in the 2nd class Township Code which states that every road not of record which has been used for public travel and maintained by the township for a period of at least 21 years is conclusively presumed to be 33 feet wide.

In these situations where there are no public records of the opening of the road certain rules of law have been established. For example, the use of land for a public highway for an extended period of time, without there being any evidence to explain how it began, will be presumed to have been done in pursuance of a full and unqualified grant to the use of the land for that public purpose. This rule was applied in the Fritchey case.

D.4. Another rule of law applied in these situations is the beaten path rule. That is, if there is no official record of a width fixed by some public authority or plan, and there is no other evidence as to the width such as fence rows, the width of the right of way depends on the amount of ground actually used and traveled by the public. This beaten path rule allows indefinite boundaries of a right of way by reference to the center of the beaten track. Again, it only applies where no other evidence is available.

The beaten path rule is also applicable to some situations where it is alleged that the location of the roadway as actually opened is different than that stated in or shown on the document or plan authorizing it to be opened. That is, where a public roadway has been opened and worked on ground different than that designated on the plans laying it out, the right of way lines may, when necessary, be determined from the middle of the cart-way so worked and used, to the width directed.
It must be remembered that this beaten path rule is only a rule of necessity and, in part, a rule of convenience, for situations where no other evidence is available. For this reason, the rule is not adhered to where direct evidence as to where to road was actually located is available. If, for example, when the road was opened, its course was marked by physically monumenting either the boundaries or the centerline, then the limits of the right of way do not shift simply because the centerline of travel deviates from time to time. The same is true if other evidence such as fence rows or walls or plans or survey or deeds are present, which evidence the location as opened.

Because of the indefiniteness of the beaten path rule and the fact that the beaten tracks on unimproved roadways tend to shift with the weather, with the seasons, and after storms, the Pa. legislature enacted a law, on the situation. This law is found at Section 1095 of Title 36 of Purdon's Pa. Statutes. It states that where a width is fixed by the authority laying out the road and the road as opened and traveled is anywhere within the lines originally laid out, these limits remain the boundary lines unless their location is changed by some other legal proceeding. That is, where the road as actually opened and traveled on is within the original lines as directed on the plans, those lines remain the right of way lines and an authority cannot use more lands when it goes to widen the cart-way without paying for it simply because the application of the beaten path rule would allow it. But if the cart-way as actually opened and traveled on is and always has been in whole or in part outside the original lines as directed on the plan, then the beaten path rule applies. The Pa. Supreme Court has held that the term 'road' in this statute means only that part fronting the abutting property and not the entire length of the road.

This discussion leads us to the question of how one determines the location of a legal right of way line where for some reason or other the cart-way moves somewhat to one side or the other during the years. Such movement, of course, does not change the location of the right of way lines unless the beaten path rule applies because no other evidence is available. But because of this movement, one can no longer rely entirely on the present centerline to locate the side of the right of way. What must be determined is the centerline of the roadway as originally and actually laid out on the ground. From this and the width directed, the right of way lines can be determined.

To determine the location of the original centerline, the official right of way plans or other documents of record can be consulted. But these plans are only one piece of evidence and may not even exist. In addition to the plans, other evidence, such as the location of fence lines, walls, buildings, hedges, and other monuments, as well as deeds of adjoining properties and other survey, should be looked into.

If the line is of recent origin, direct proof by living witnesses, ordinary documentary evidence such as right of way plans, subdivision plans, or recent deeds and survey, and expert testimony from surveyors and engineers should suffice to prove the boundary line. But where the right or title claimed is of ancient origin or the transactions under investigation is so remote as to be incapable of proof by regular evidence, the law, of necessity, relaxes
the rules of evidence and requires less evidence to substantiate the facts in controversy. For example, the following types of evidence have been admitted as furnishing evidence of remote transactions: ancient maps, records, surveys, ancient town plats, historical books which have generally been treated as authentic, and reports made by disinterested parties apparently conversant with the facts and now dead. Also maps, surveys, monuments, and even reputations evidence have been held admissible to establish boundaries. Moreover, boundaries may be established by circumstantial, as well as by direct, evidence.

Some general rules of construction in addition to those already mentioned have been established in regard to boundary disputes. For instance, there is a series of decisions establishing rules of comparative dignity as to type of calls in a deed. All of these rules are a matter of convenience and are not conclusive as to a boundary. They are adaptable to the circumstances and are only to be used to ascertain the actual intentions of the parties involved.

Some of the general rules of construction are as follows: a line actually marked on the ground must be adhered to although it varies from the information contained in a deed or map; maps, plats, or field notes referred to in a grant or conveyance are regarded as incorporated into the instrument and are given considerable weight in determining the true description of the land; all corners are of equal dignity except the beginning corner is marked on the ground, it is of controlling importance; a particular description is higher that a general description; and, reversing the lines of a survey should be resorted to only when necessary to make the survey close. As to the rules of comparative dignity of calls referred to in deeds, they are generally as follows: 1) natural monuments or objects; 2) artificial marks or other objects made or placed by the hands of men; 3) maps; 4) adjoiners and adjacent boundaries; 5) courses; 6) distance; and 7) recitals of quantity. It must be remembered that none of these rules of priority apply if they appear to frustrate the true intention of the parties at the time. That is, an inferior call will prevail where absurd consequences might ensue by giving controlling influence to a superior call, or where a consideration of all the facts and circumstances shows the inferior call to be more reliable or certain, or where the superior call was inserted by mistake or inadvertence. In any event, the line adopted as the boundary should be that most consistent with the apparent intent of the parties.

The function of expert testimony is to assist the triers of fact in matters involving special skills and requiring study and experience for the comprehension of which the ordinary layman is not equipped. As such, opinion or expert testimony from qualified surveyors has been received in courts of law on such subjects as the interpretation of plans or blueprints, the determination of boundary lines, the location of survey, and the interpretation to be given a survey with regard to marks and monuments.
E. Right of Way Plan Surveying Requirements, Datum Identification, and Miscellaneous Easements

E.1. The right of way plans filed in the county and the Department contain detail sheets of the project and individual plats of properties effected by the project in certain situations. Unless decided otherwise, individual property plats are not prepared on projects primarily on existing right of way where only minor property acquisition is involved, where an entire property is to be acquired, where the total property and all necessary data is shown on the detail sheets, and where the property owner has settled with the Department prior to the recording of the plans. In all other cases, individual property plats are required.

The total ownership of each parcel effected by the project, that is, its entire perimeter with metes and bounds, is shown either directly on the detail sheet or on the appropriately referenced property plat. In both cases, the same property data is required. Among other things shown are the property lines and ownership, the legal right of way lines, the required right of way lines, the limit of slope lines, the survey and centerlines with bearing or the survey and baselines with bearing, the survey references, and the station of all property lines intersection the required right of way line.

These plans contain sufficient dimensional and angular data to permit ready identification and correlation with the legal descriptions of all parcels and easement areas that are required by the associated highway project. Care is used in ascertaining the correct names of property owners and the correct location of property lines. The required right of way shown on the plans is a geometrically defined area noted by dimensions and plusses or plusses and offsets. Also, the horizontal geometry and right of lines are the same as that shown on the plans supplied to the contractors who actually do the work on the project.

E.2. The location of property lines on right of way plans is determined from the deeds of record and the lines established in the field survey of the project. Where a large property is involved, the Department often contacts the land owner to see if he has a property plat for possible use in preparation of the plans. It should be noted that it is not the policy of the Department to correct erroneous deeds. For this reason, property closures are not made on the plans where errors in deeds are present. In this situation, the plans have a note thereon stating that it was plotted from the deed or record and reflects the accuracy and/or inaccuracy of the deed.

In cases where there is an overlapping of properties with the right of way because of incorrect deeds, the Department examines the problem and comes up with possible paper survey solutions. In these situations, the plan should designate that the bearing of the line is a "call" bearing. Of course, the actual distance will be used.
E.3.
The Department normally bases elevations on the United States Coast and Geodetic Survey of 1929 benchmarks. Of course, if none of these benchmarks are in reasonable proximity to the project, some assumed or arbitrary datum is used. The general notes contained on the typical section sheets of the plans are to specify what datum the survey was based on. Also to be noted in that part of the plans is whether the horizontal control of the survey is tied to the Pa. Coordinate System or True North or to some other control.

Where the datum used on a survey is not identified thereon, problems can definitely develop. A recent situation the Department was involved in portrays what I mean. It seems that the Department was constructing a highway across a stream and the local township asked if the Department would, as part of the project, provide a storm sewer system which at some later point the township would hook into. The township would reimburse the Department for all construction costs and provide its own plans for the sewer system. The Department agreed.

The construction of the project was based on the Department's construction plans and an appendage of 5 or 6 sheets prepared by the township in relation to the storm sewer system. The storm sewer plans called for a transition manhole which was the point at which the township would eventually hook into. Five or six years after construction, the township decided to improve the nearby intersection and in the process hook the local drainage into the storm sewer system previously built. It was discovered in the planning stages that the manhole constructed by the Department was actually 2 feet higher than had been called for in the plans submitted by the township.

What had happened was that the construction plans were based on a United States Coast and Geodetic Survey benchmark which was relatively close to the project, whereas, the township's plans were based on an arbitrary benchmark located far from the project. Neither sets of plans specifically noted what datum they were based on.

The township claims that the Department should have observed that something was amiss either when it read the plans or during or after construction. The Department believes that although there is no real major problem with using two different datum on abutting or interconnecting plans, if there is a change in the datum used it should be noted on the plans changing it. If it is not, the contractor actually doing the work will naturally assume that it has not been changed. Also, it is reasonable for a contractor to assume that a close actual benchmark was used where nothing special is noted on a plan.

Who is to blame in this situation has not yet been determined, but it does show that one should note on a survey or plan what datum was used in preparing it, if appropriate. Also, on surveys or plans abutting each other or interconnecting in some way that they might have to be used together, it seems the best thing to do would be to use the same datum on both. If this is not done, more work is involved in having to use the two control points or a conversion factor even if the two different datum are marked on the surveys or plans.
E.4.
In addition to those types of property rights which I have discussed, the Department sometimes must acquire water related easements, in connection with a highway project. The existence of these easement should be shown on surveys of an effected property since they are a servitude on the property. Pursuant to Section 418 of the State highway Law, the Department can acquire private property to or in the vicinity of a state highway or bridge to change or protect existing stream channels where it is deemed advisable in order to protect the highway or bridge. This area required for channel change is geometrically tied to survey baselines contained in the right of way plans. Similar to the area for channel change is an area for occasional flowage easement. This interest in abutting lands is acquired where the highway design is expected to create flood waters higher than those that existed prior to the construction.

In opposition to the above situations where the Department must actually acquire an area for channel change or for a flowage easement, is the situation involving drains and ditches. Pursuant to Section 417 of the State Highway Law, the Department need not acquire any type or right in order to build or cut drains or ditches on private property in order to carry water from a highway, regardless of how far the drain or ditch extends beyond the right of way lines. These details are shown on right of way plans through since they can be an element of property damage in a condemnation proceeding. As a practical matter, the Department does acquire an underground drain pipe easement if a drain pipe is to be installed outside of the right of way and change area. In this case, it is noted on the plans that the property owner may use the surface over the easement for farming, parking, and similar purposes which will not injure the pipe, but that no structure of any type may be erected thereon, nor may any pipe be connected thereto without advance approval of the Department.

E.5.
Another interest which the Department is at time required to acquire is a substitute right of way. The authority for this type of acquisition is found in Section 412 of the State highway Law, which states that the Department may take over land in which a public utility has an easement when necessary to build or improve a state highway, but that if it does, it must provide a substitute right of way for the utility on another and favorable location. An area acquired for substitute right of way is for this purpose.

E.6.
On some projects partially financed by the federal government, the Department acquires what is called a scenic easement. These scenic easements cannot extend greater than 1,000 feet from the right of way line of acquired amicably and not greater than 500 feet if actually condemned. The uses allowed in these scenic easement areas are very restricted. If they exist as a servitude on a piece of property, it should be included on a survey of such. (Similar to these scenic easements are easements acquired by the Department pursuant to Section 413 of the state Highway Law for unobstructed view down and across land located close to intersections or curves.)
E.7.
Finally, I would like to note that Section 419 of the State Highway Law used to authorize the Department to designate ultimate right of way lines for a state highway. These lines were to show the width which the highway would ultimately be opened up to, although not at that time. If such plans were filed in the local courthouse, a property owner would not be paid for damages to any buildings erected within the lines thereof when the road was eventually widened to its full ultimate width. In 1966, the Pa. Supreme Court declared Section 419 unconstitutional since it authorized the taking of private property without just compensation. For this reason, ultimate right of way lines are no longer used and any such lines on old Department plans should be ignored. Similarly, any lines on a right of way plan denoting that a temporary easement for construction was acquired can be ignored if the project in question has been completed. As the term denotes, a temporary easement for construction is only valid during the construction period. Afterward the land reverts back to the owner free and clear.
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1 The designations following the case names coordinate with the sections of the outline which the cases are pertinent to.